Meridian Solar Farm

EN010169

Volume 6

Environmental Statement

6.3 ES Appendix 16-2: Glint and Glare Assessment - Part 3 Annexes X and Y

APFP Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

March 2026

Annex X: Visibility Assessment Evidence

Annex X: Visibility Assessment Evidence

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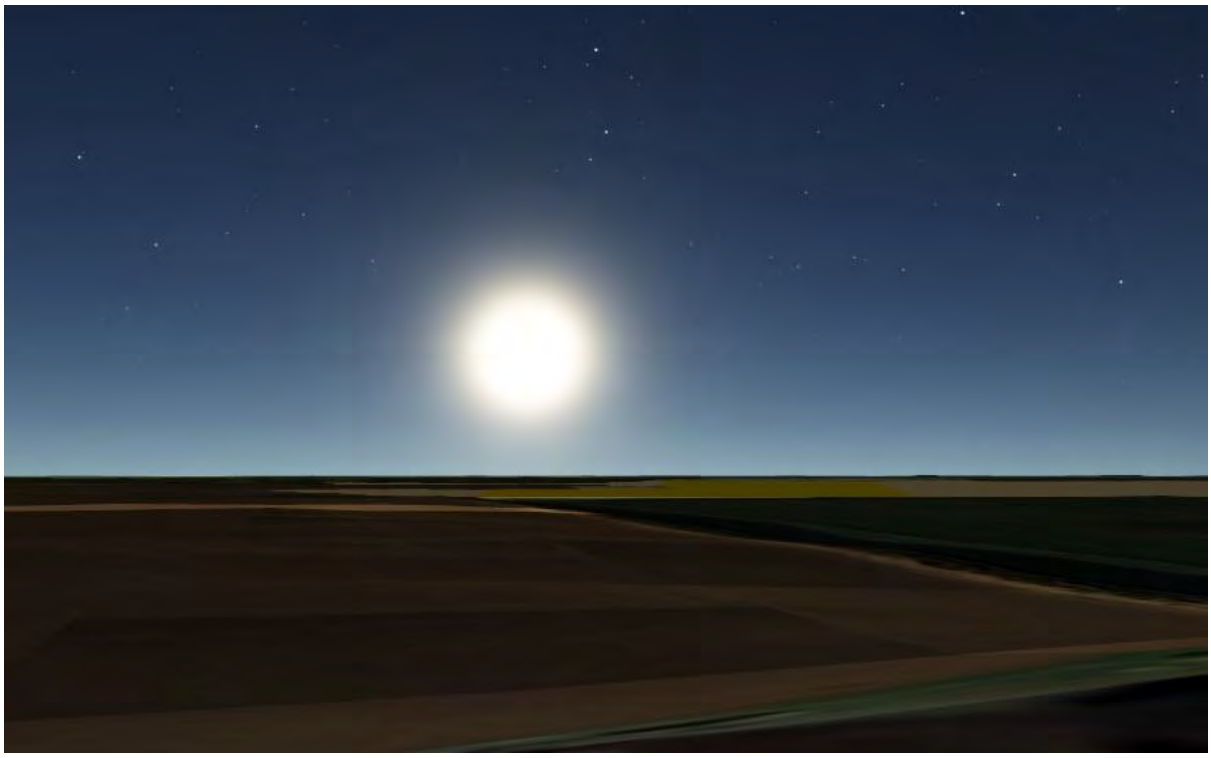
West Residential Receptors – Land Parcels A - C

Receptor 2

Receptor 6

Receptor 7

April 15th 18:15 UTC



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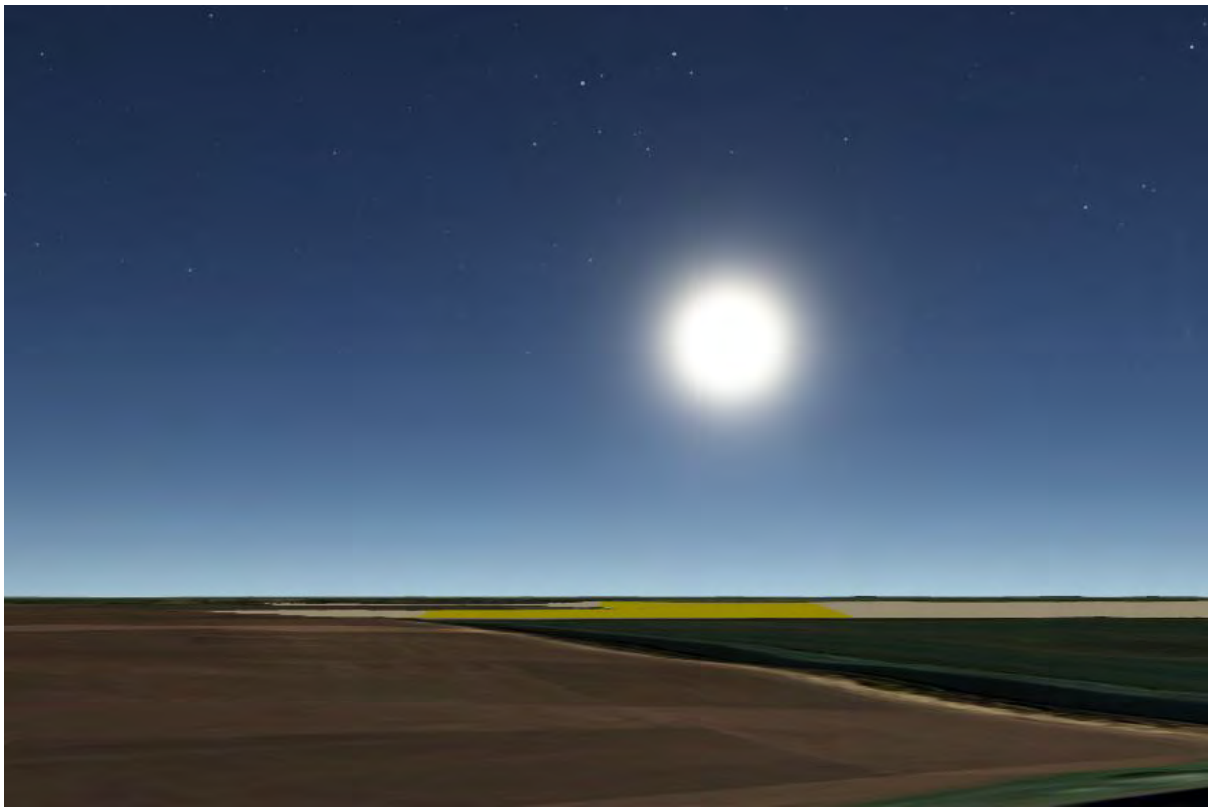

Receptor 9

Receptor 10

Receptor 29

Receptor 30

Looking East

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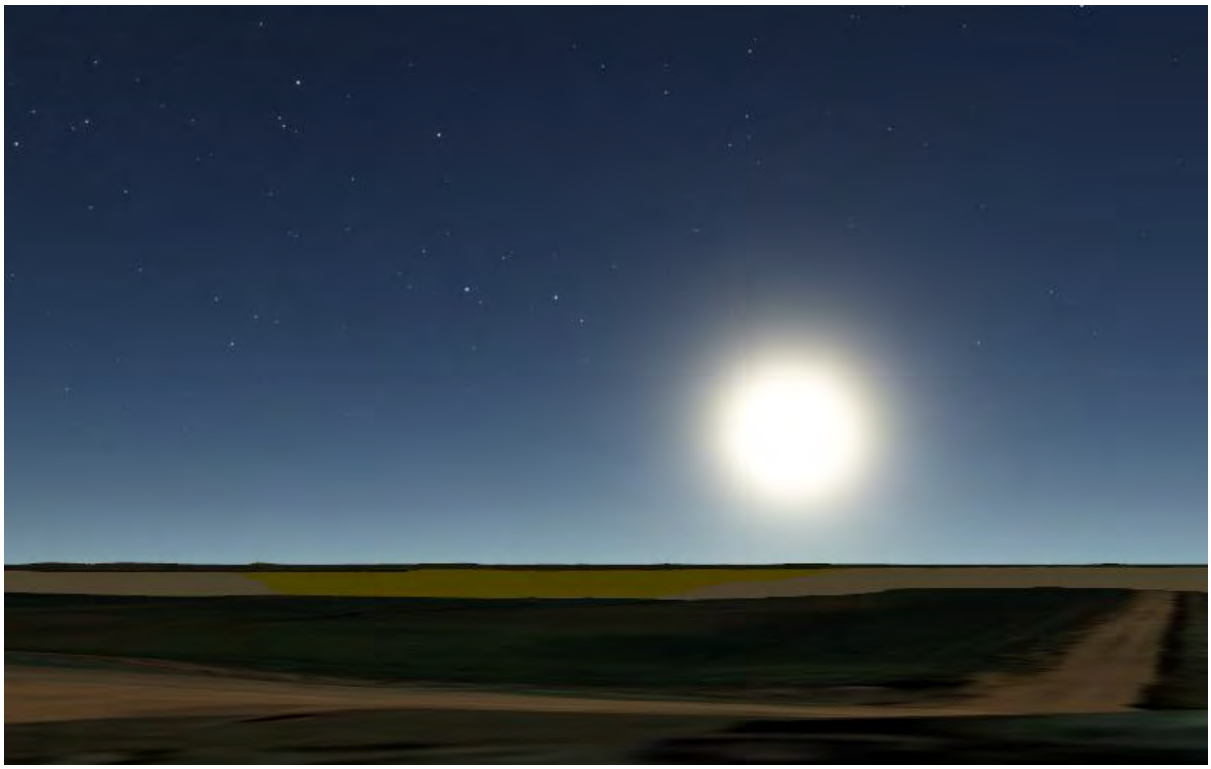

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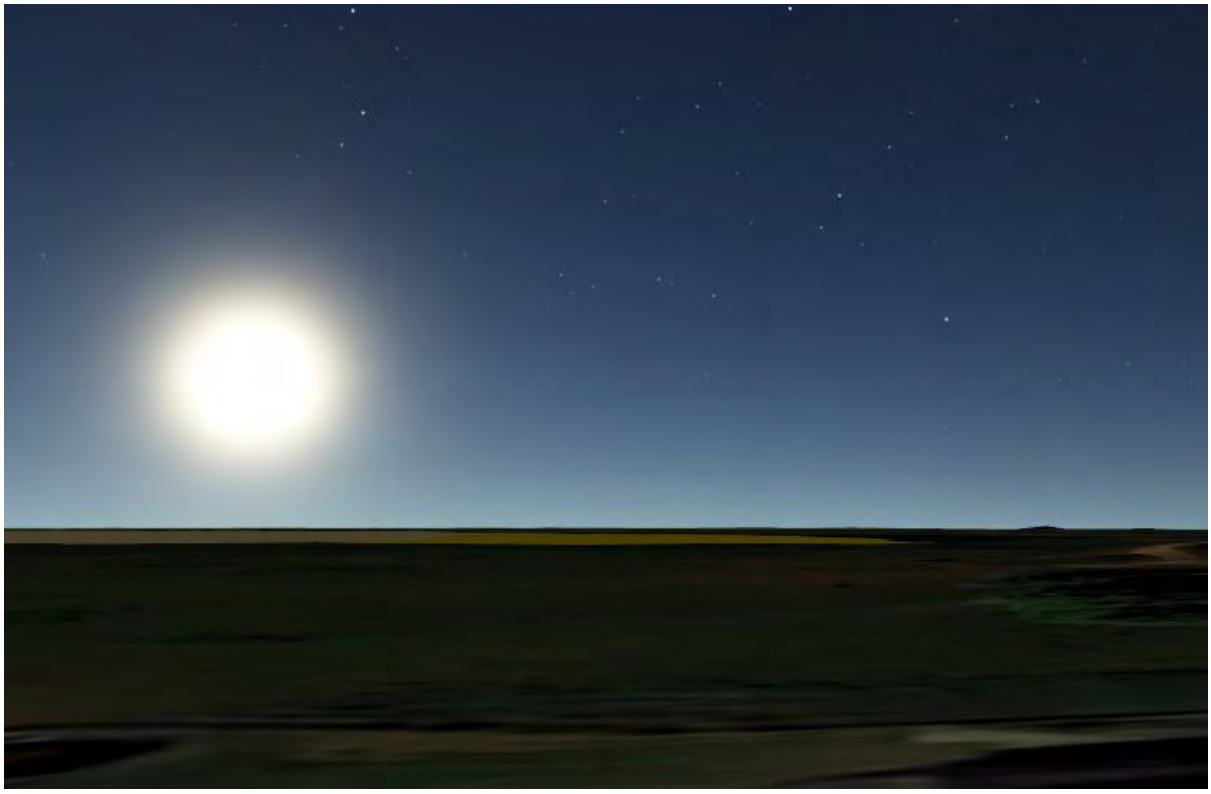

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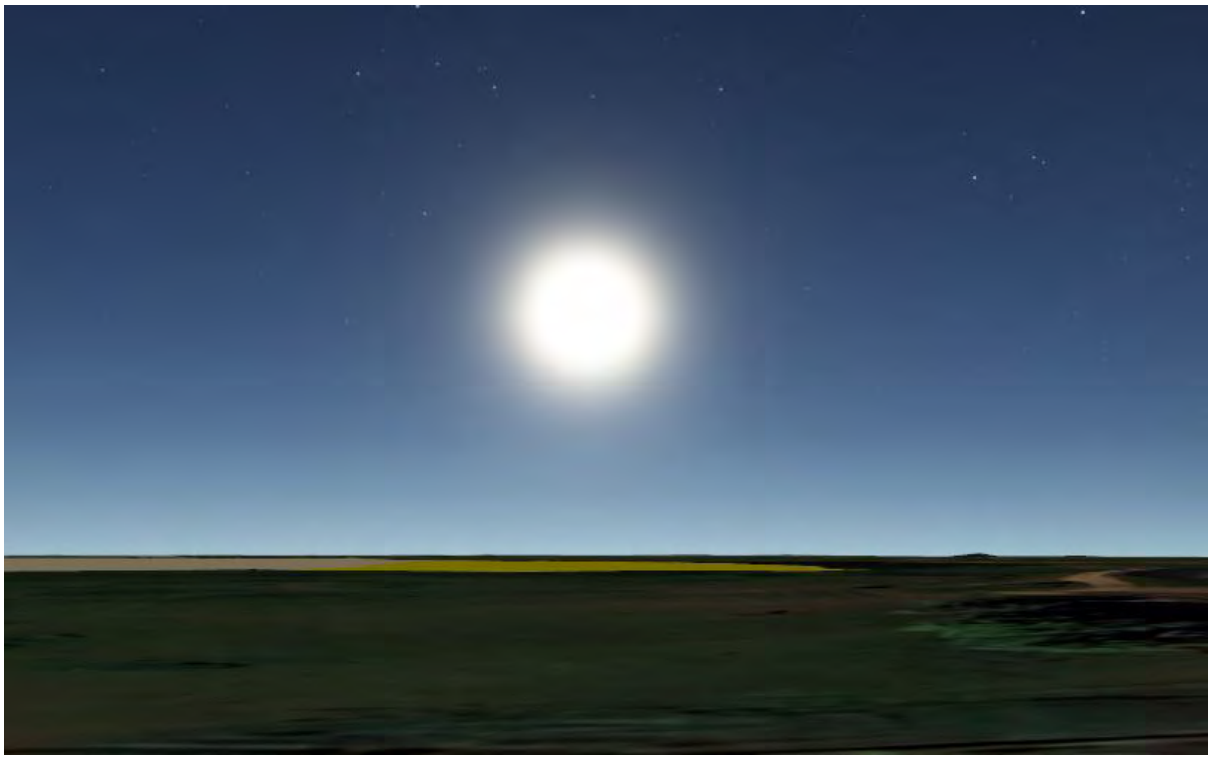
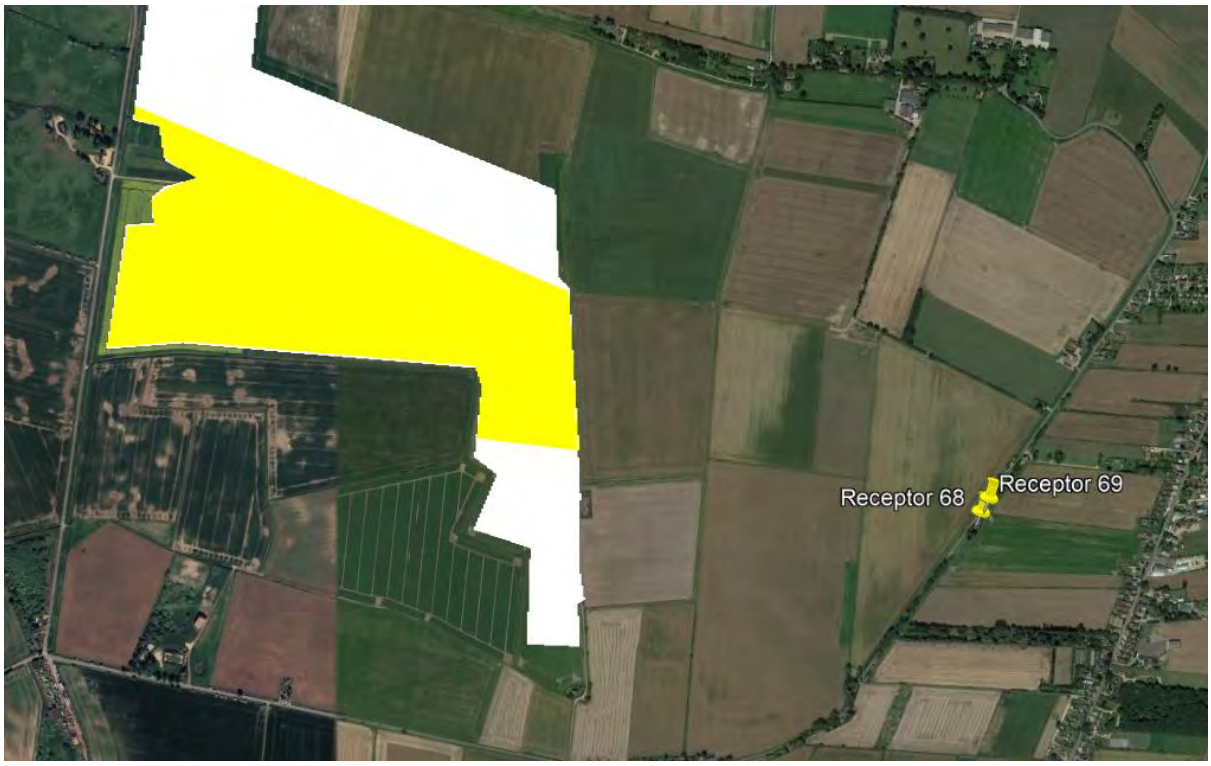


Receptor 33

Receptors 34, 35 and 37

Receptor 67

Receptors 68 and 69



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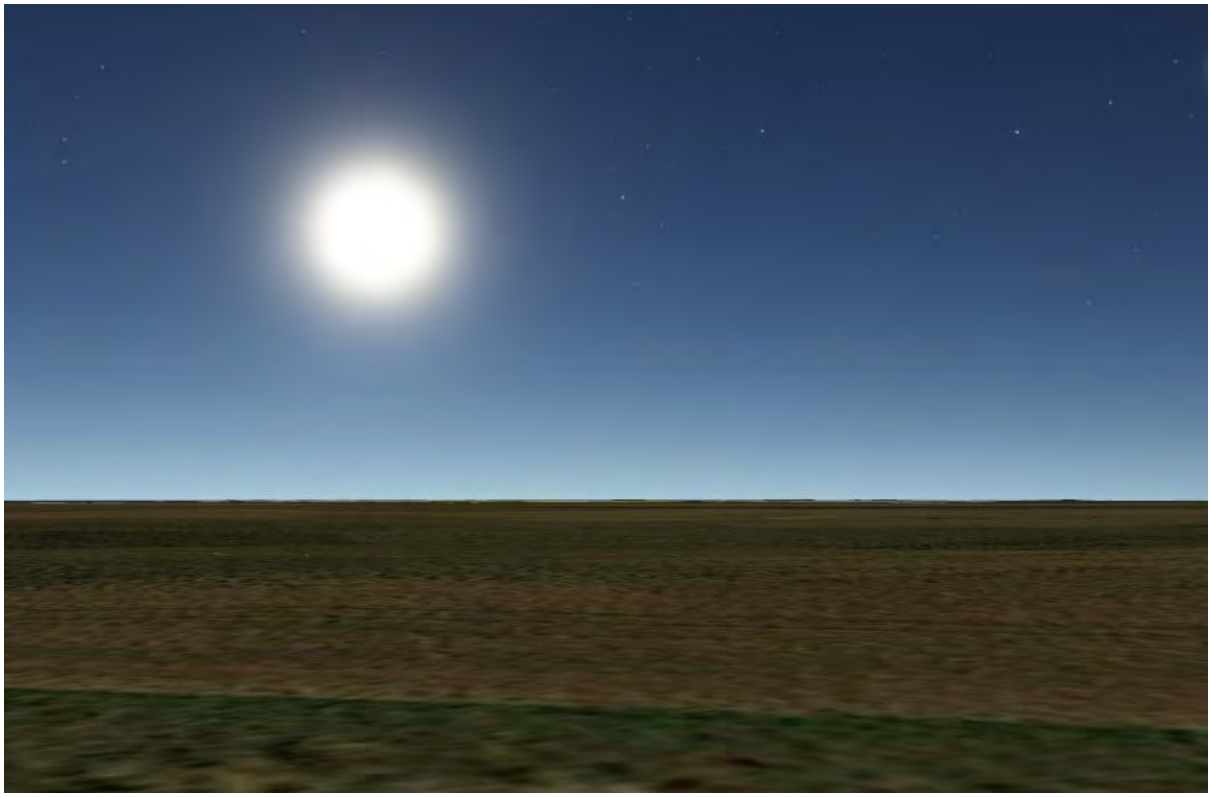

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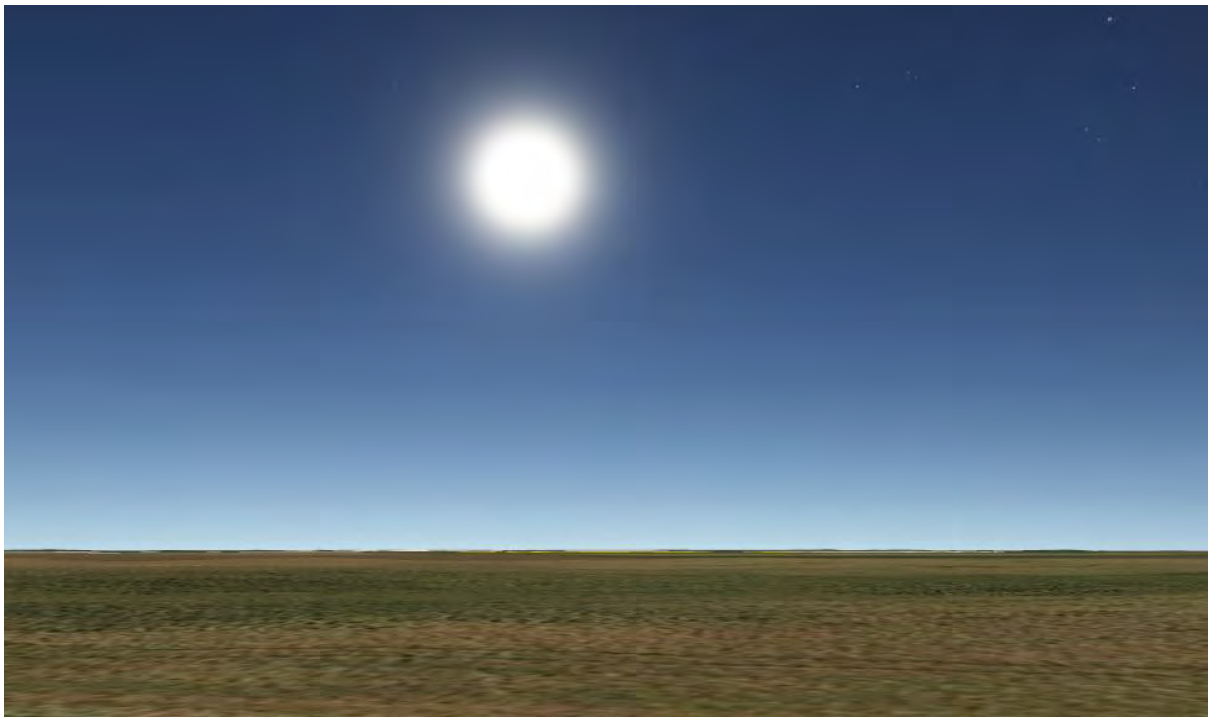

Receptor 70

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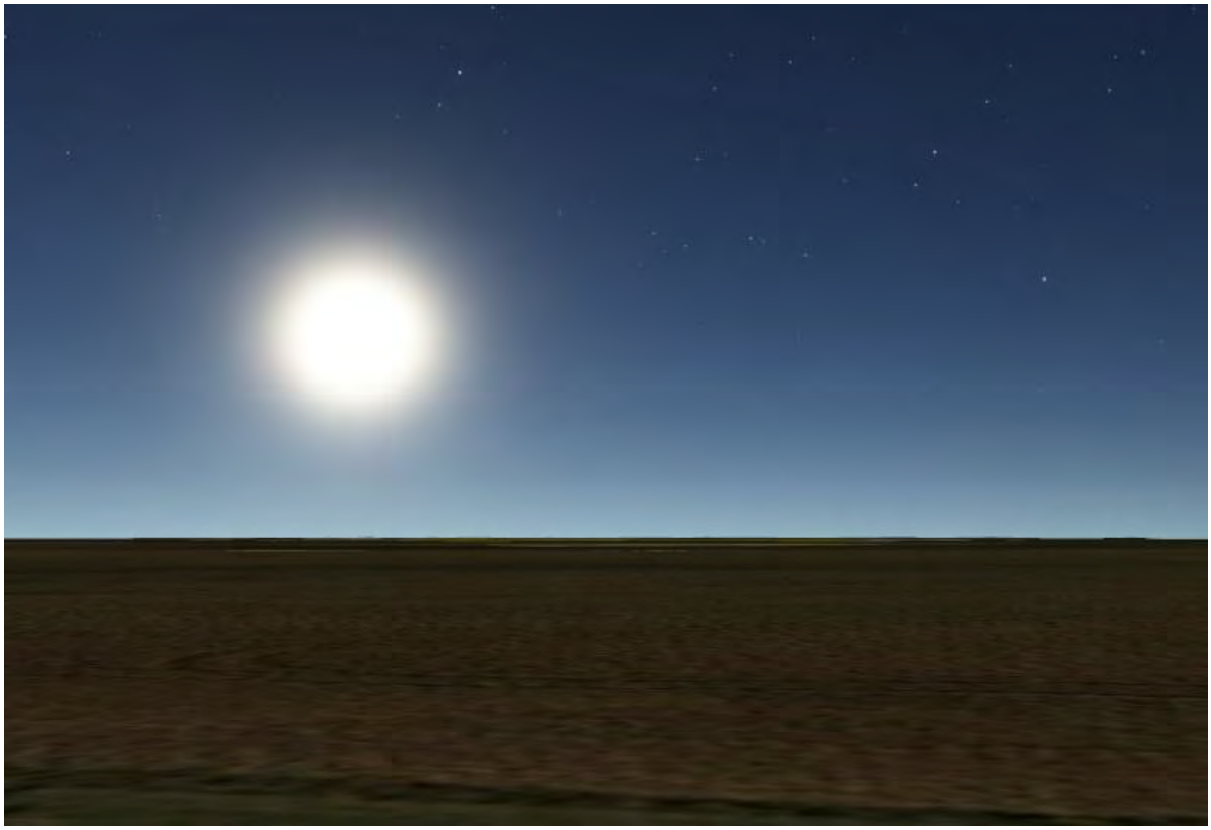

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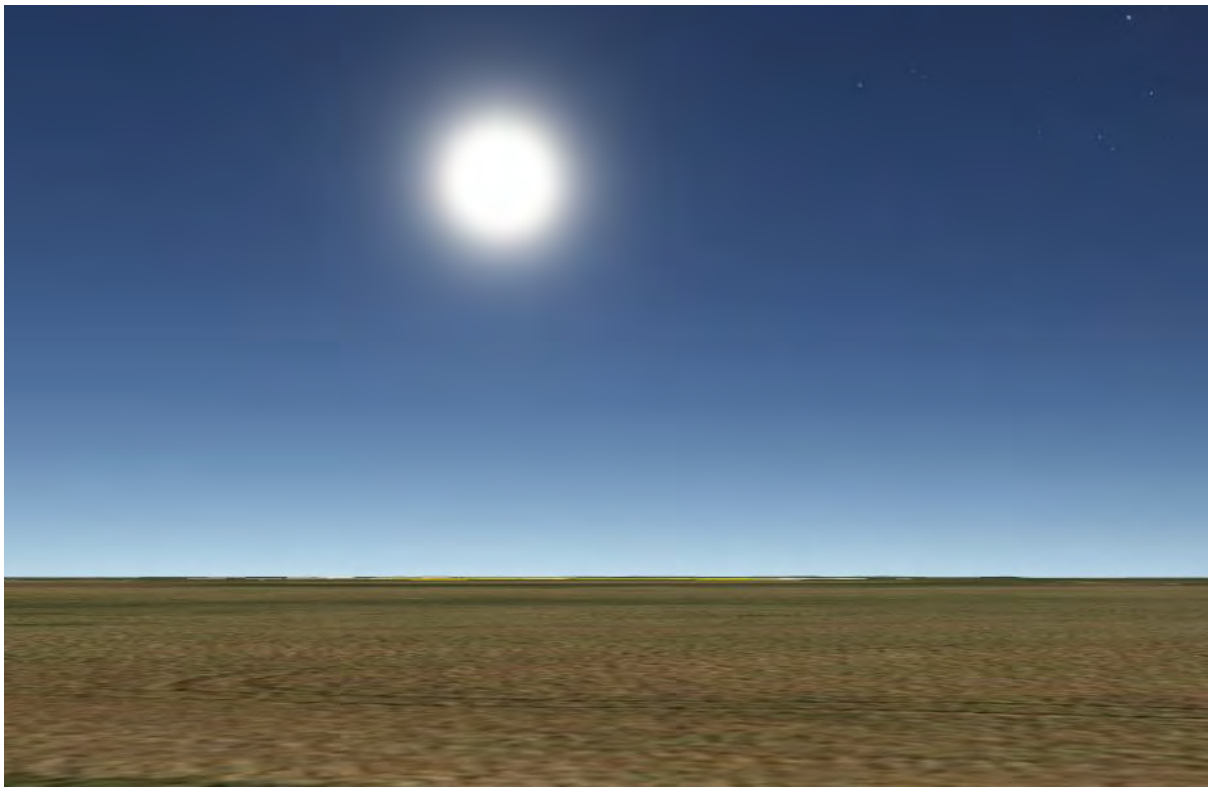

West Road Receptors – Land Parcels A - C

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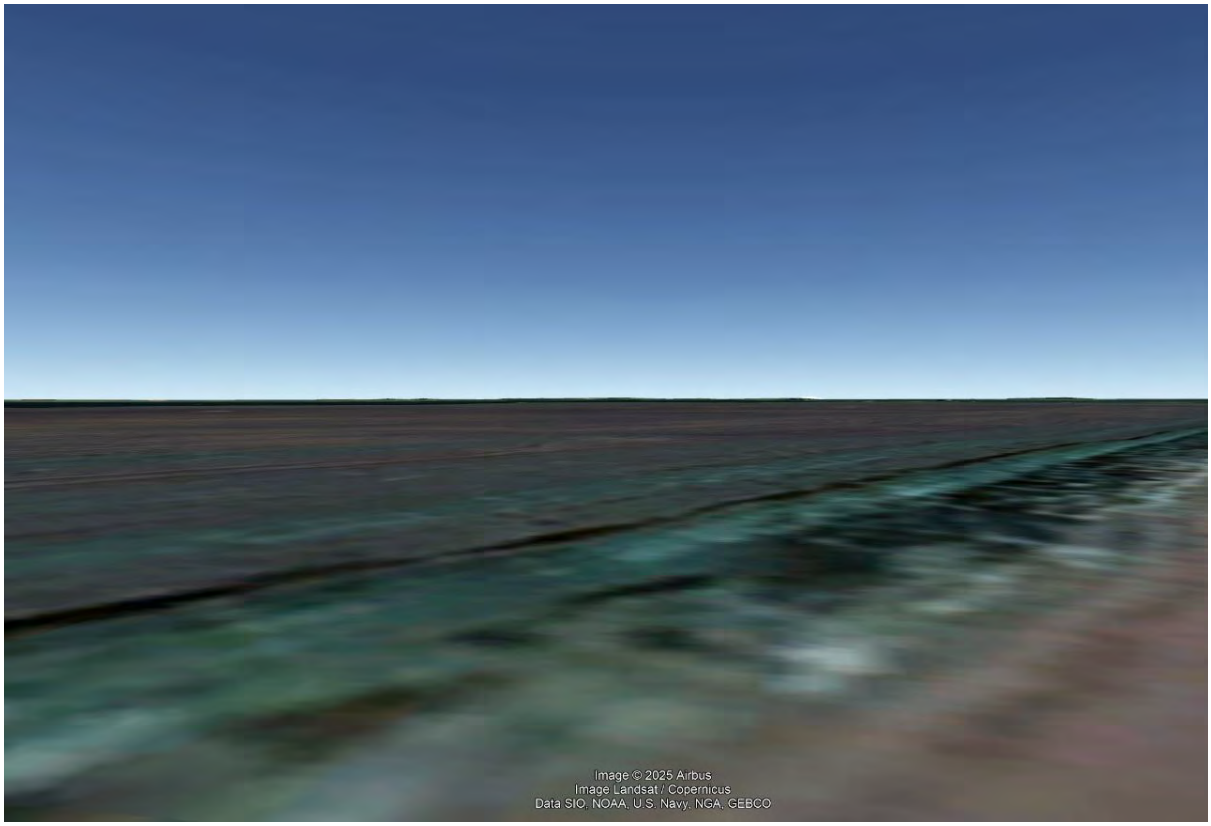

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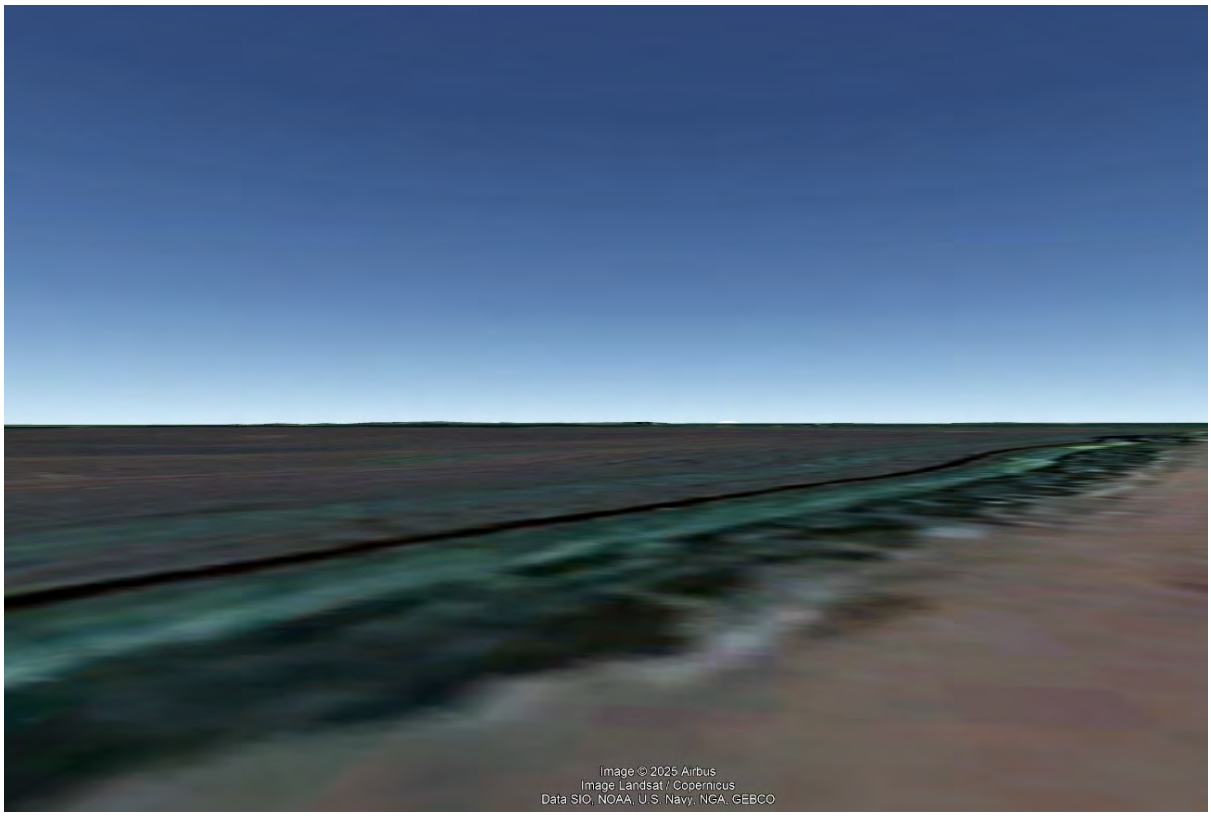
Image © 2025 Airbus
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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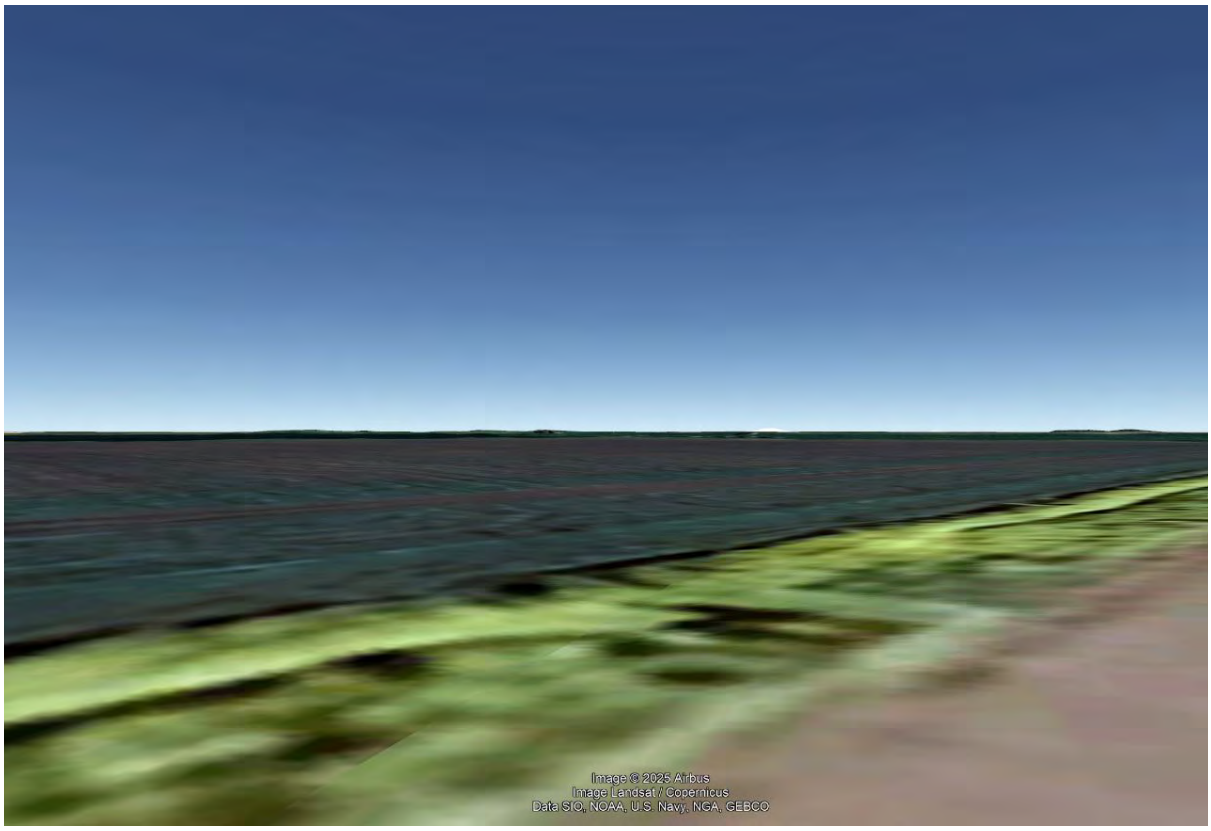
Receptor 3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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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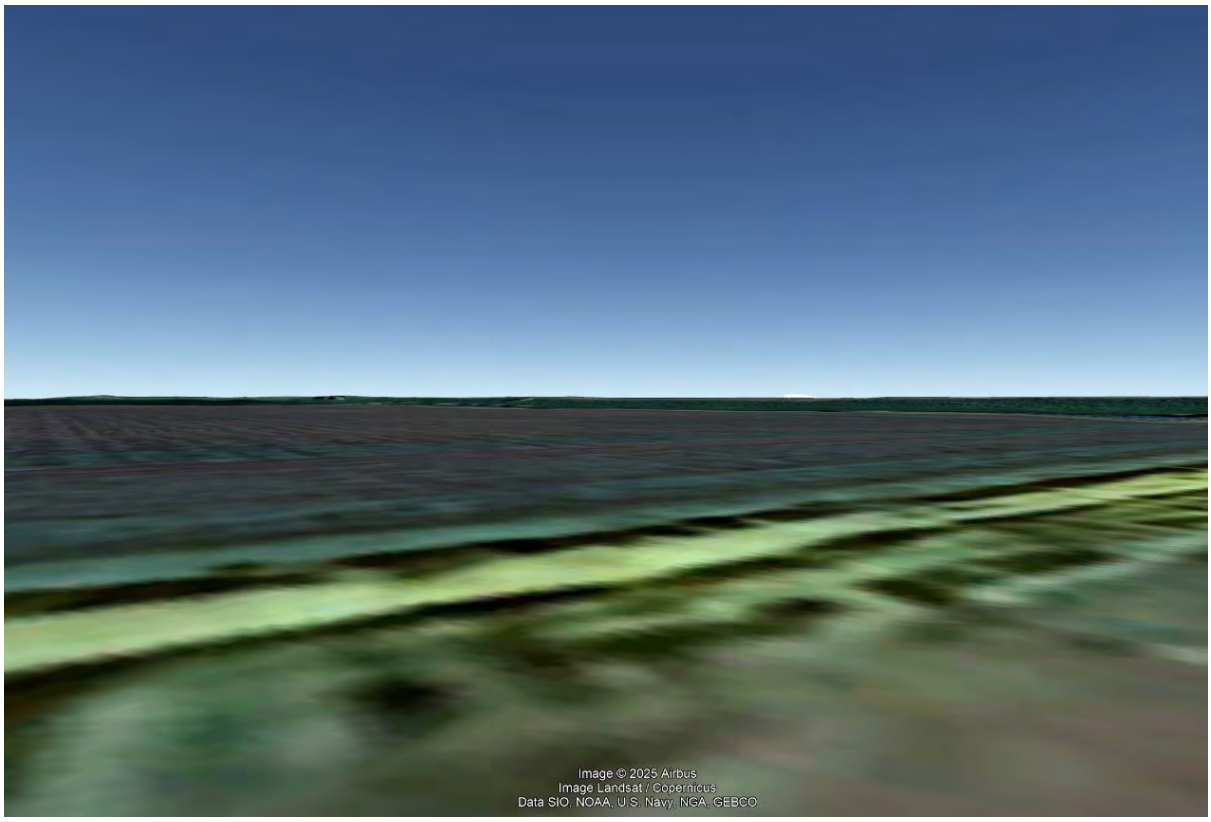
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Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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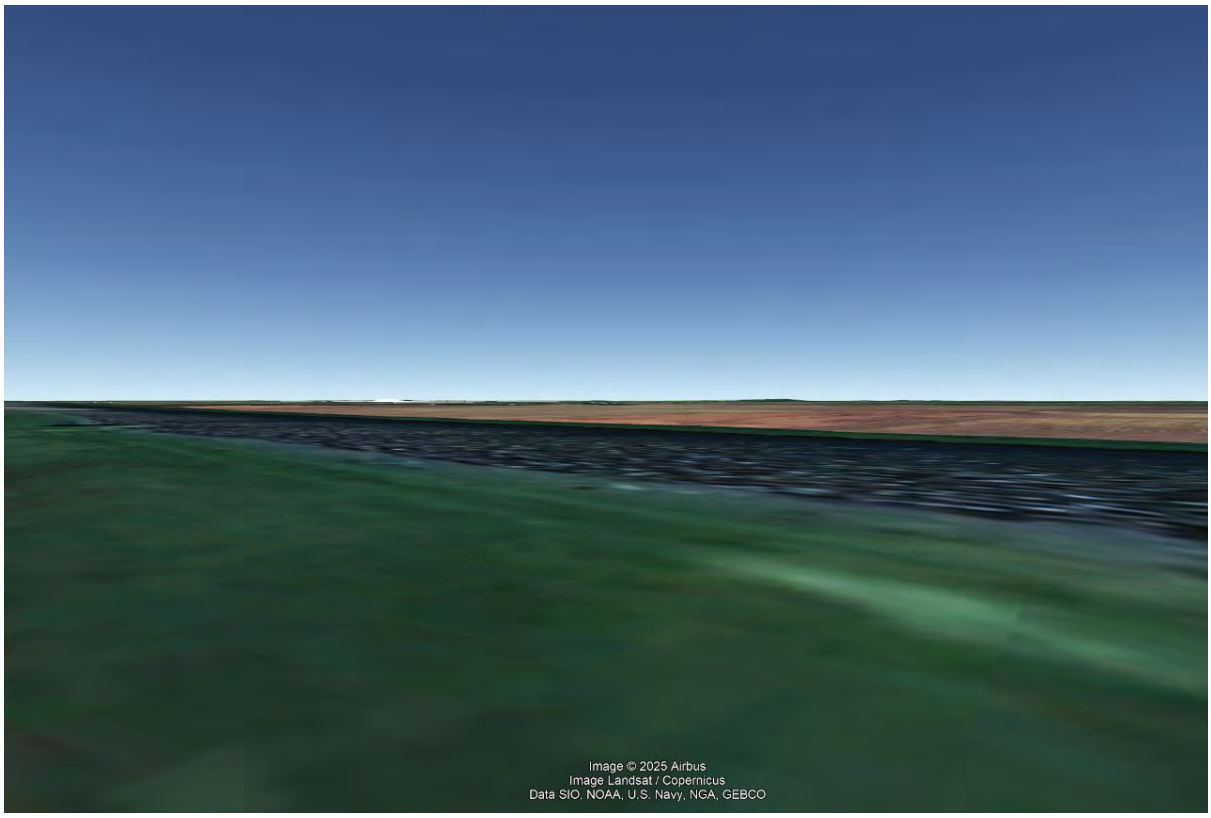
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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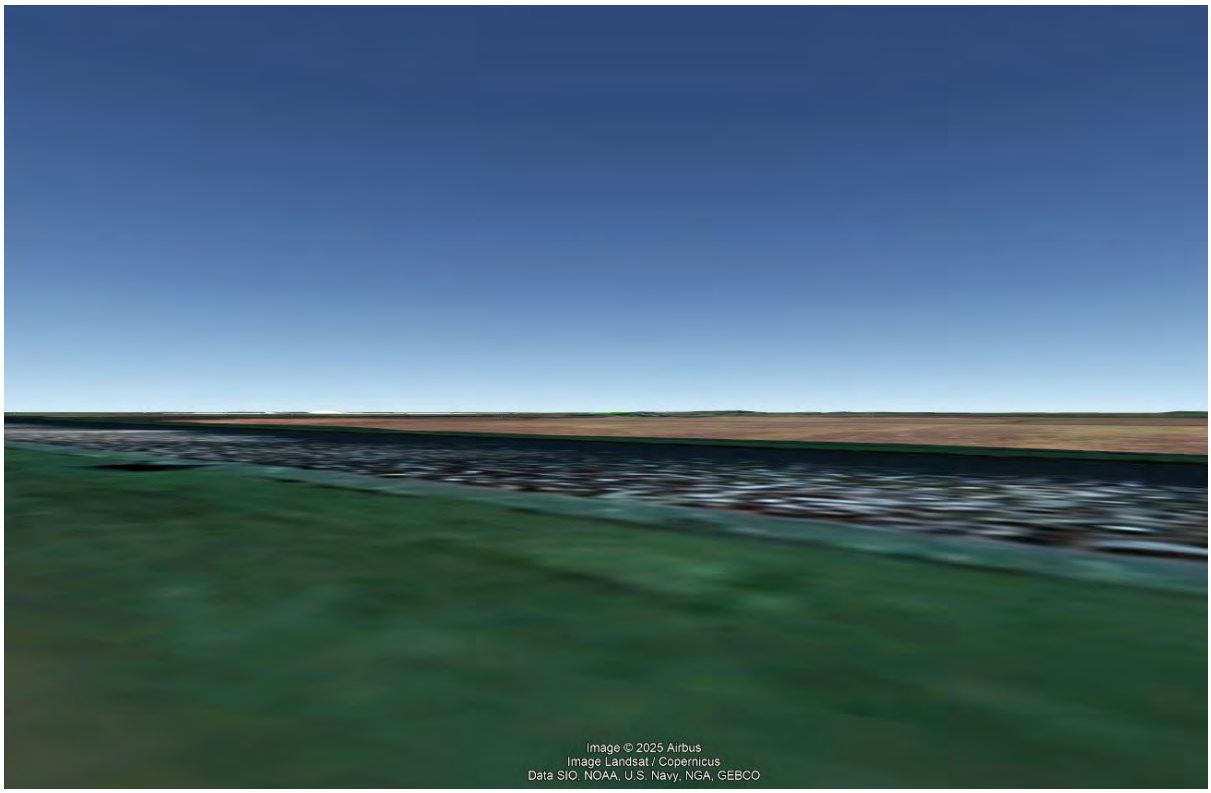
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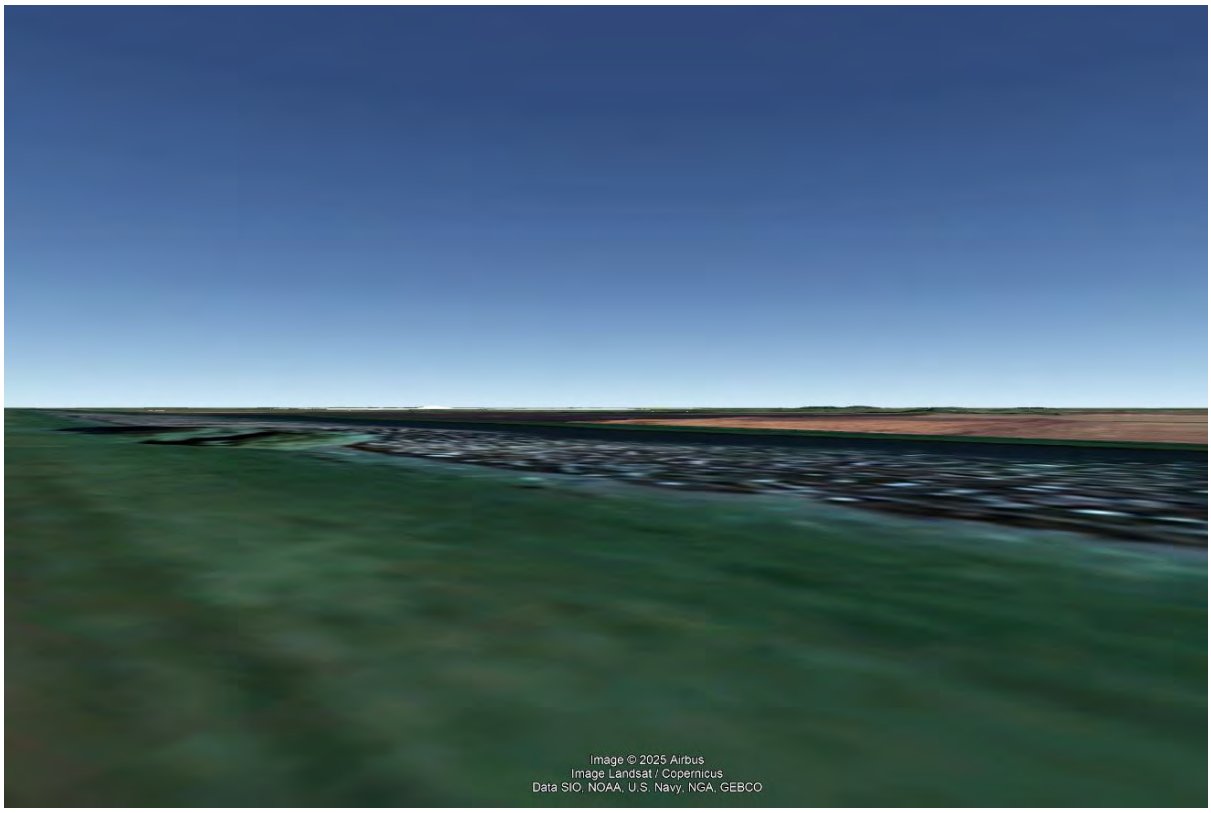
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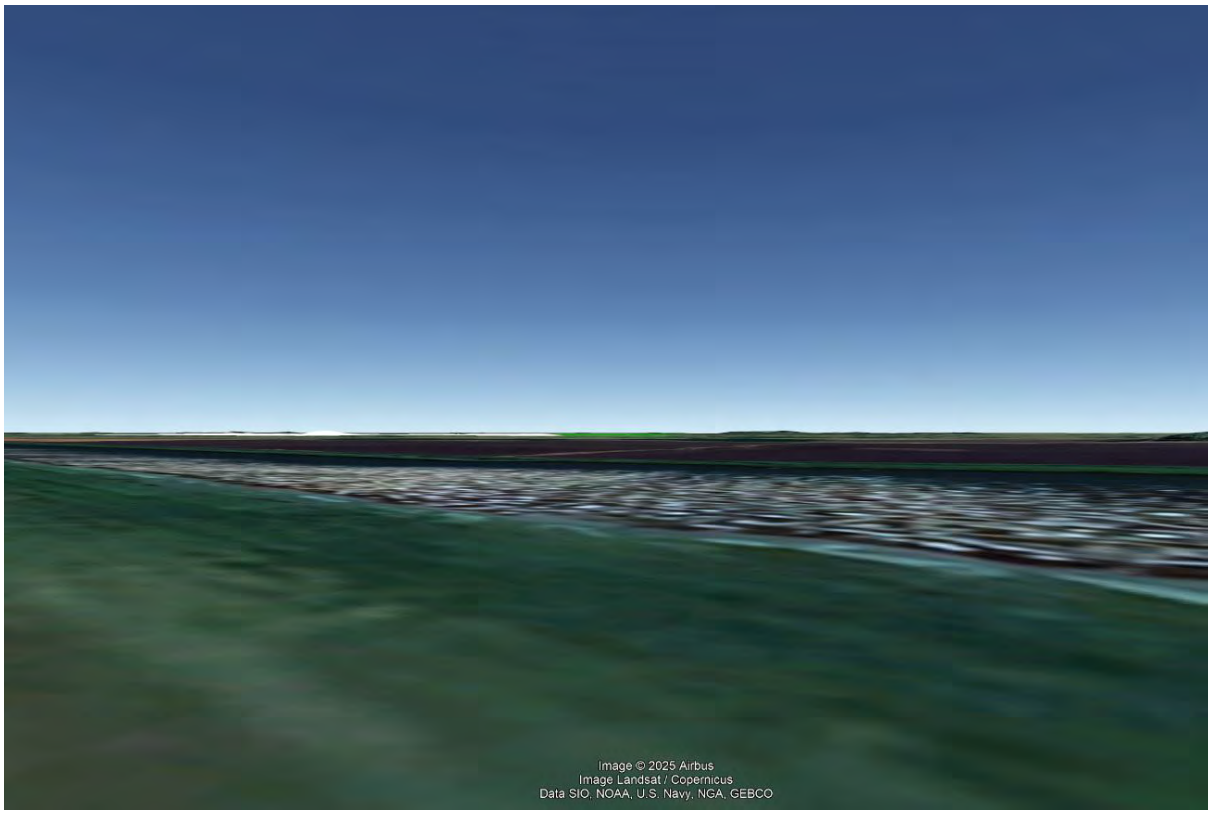
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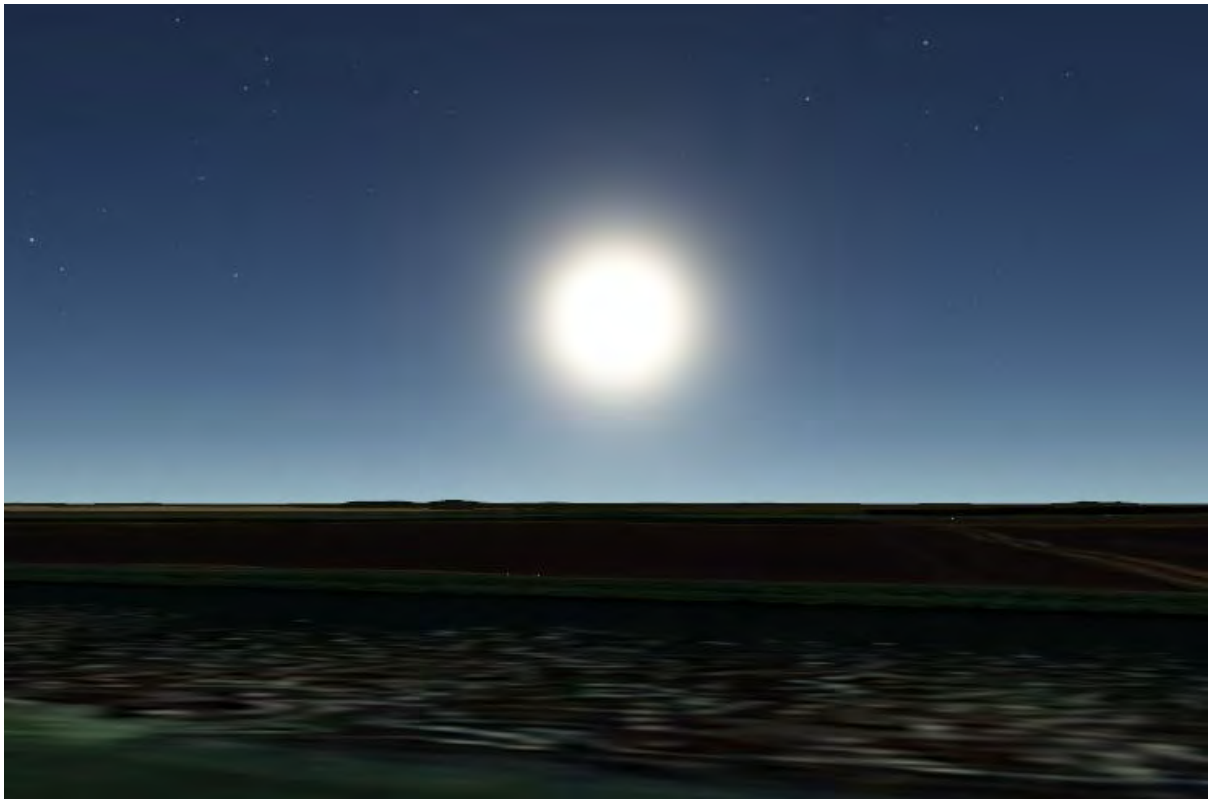
Receptor 9

April 1st 06:30 UTC



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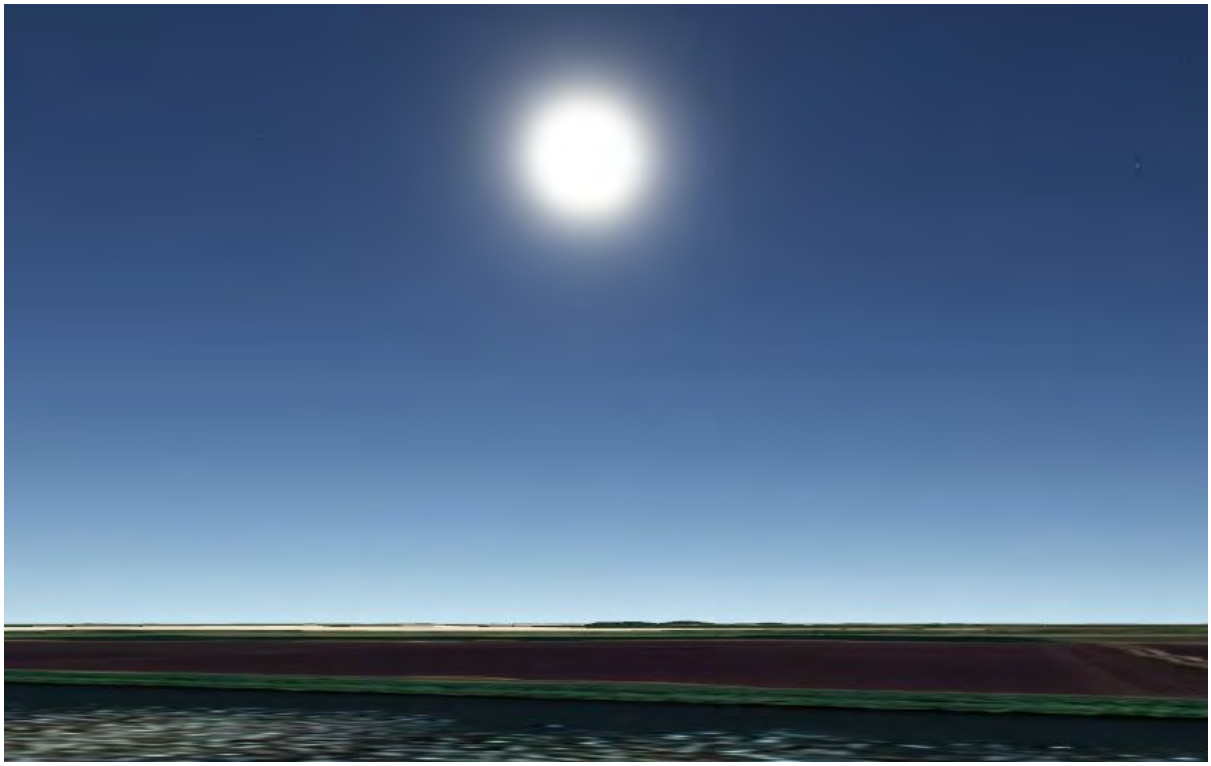

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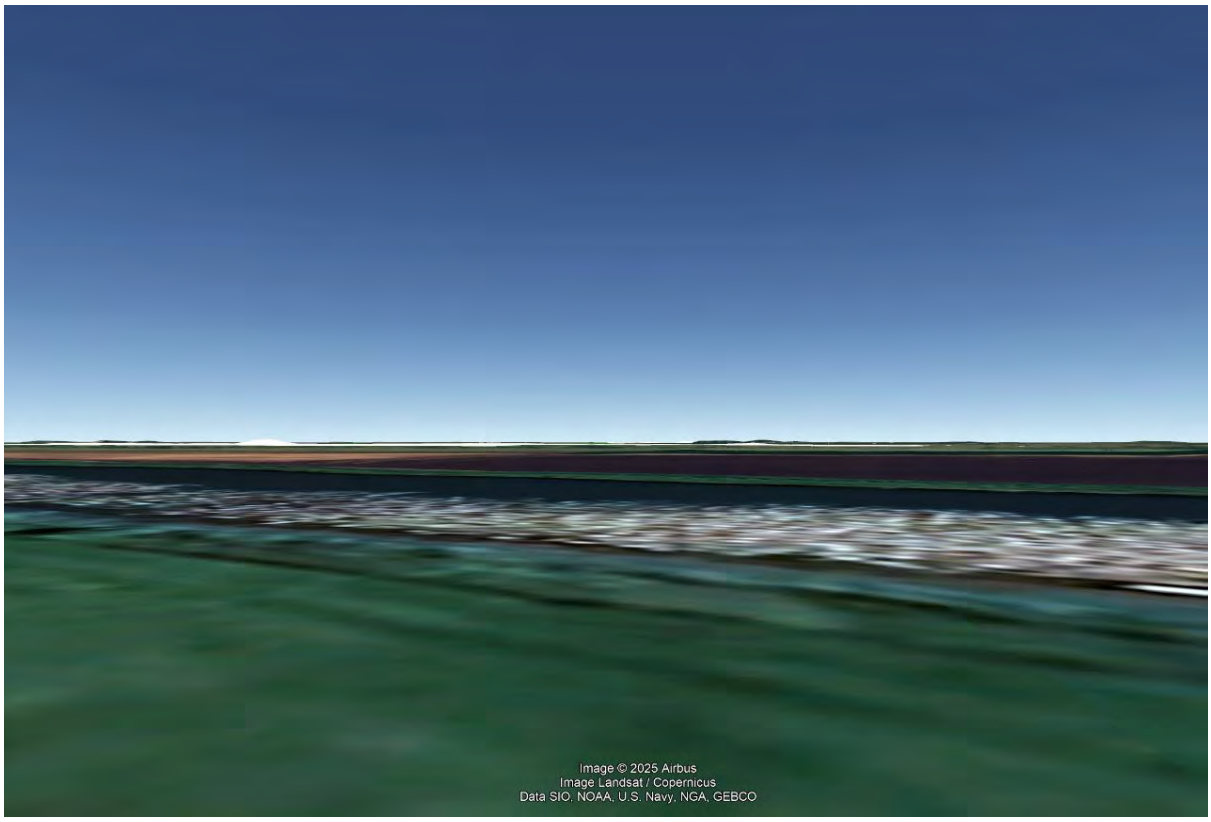
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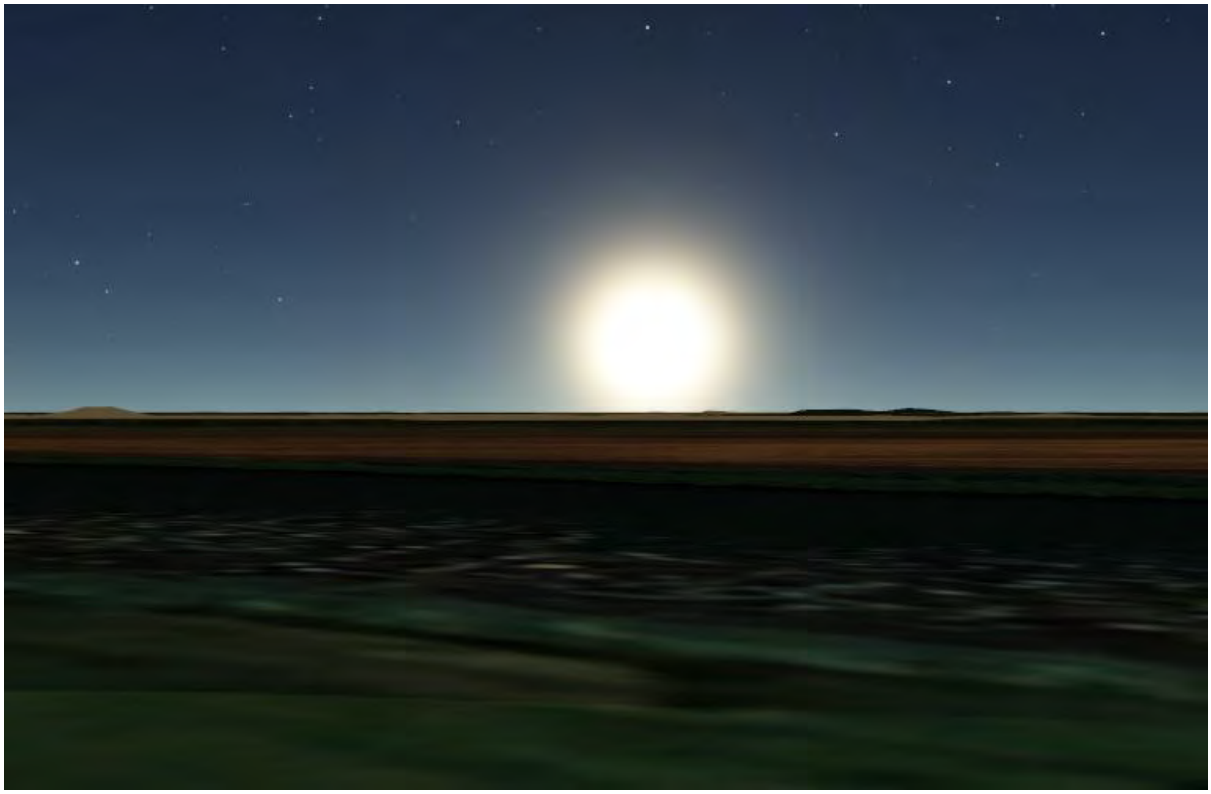

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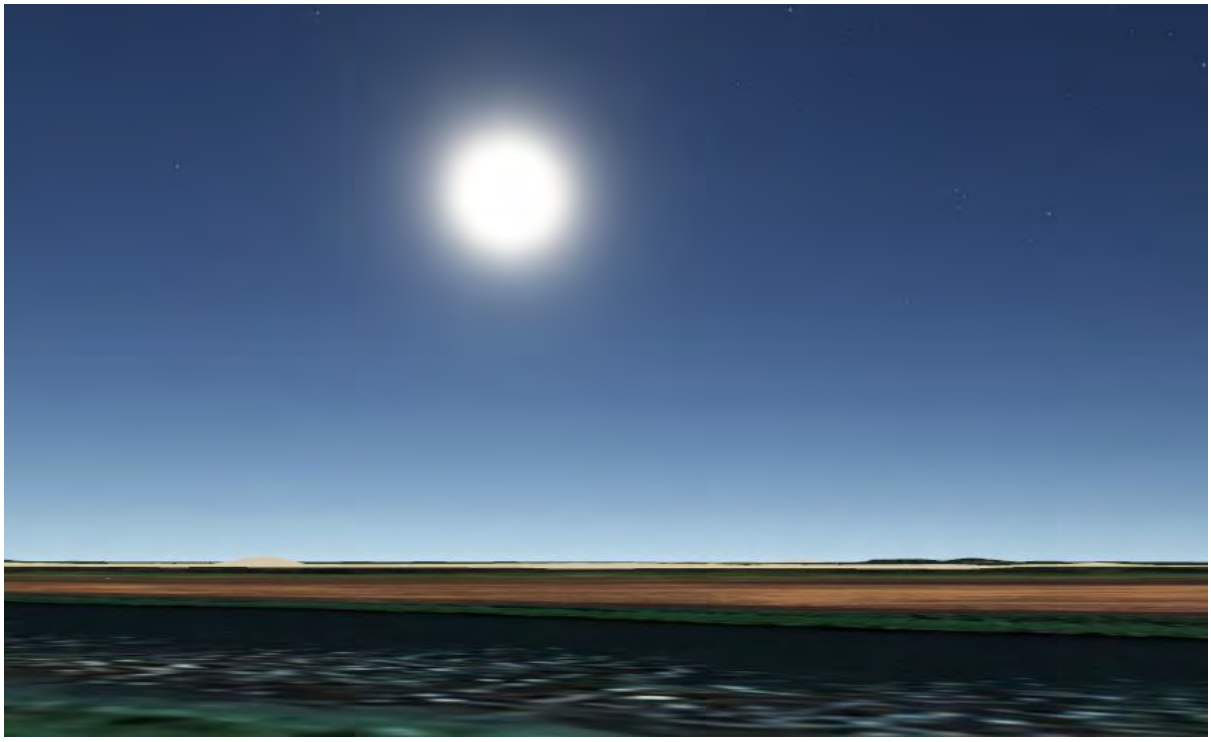

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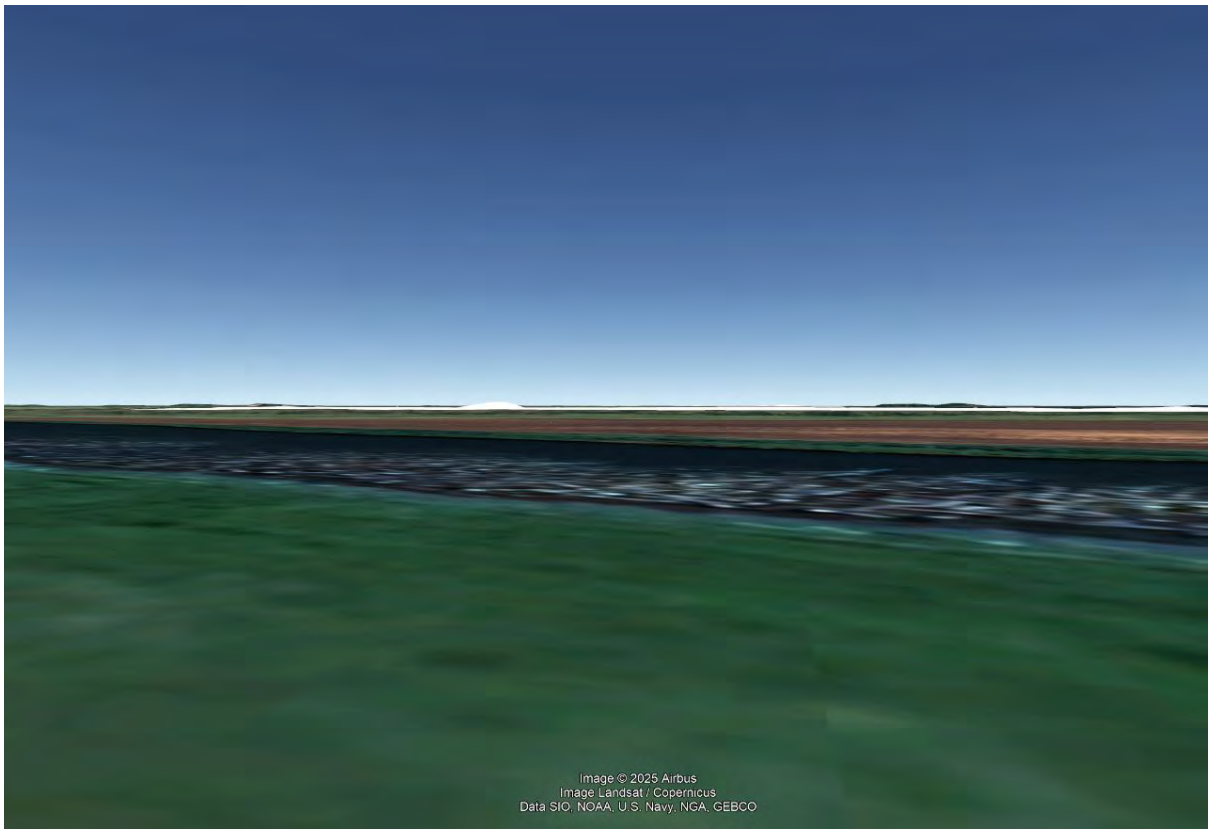
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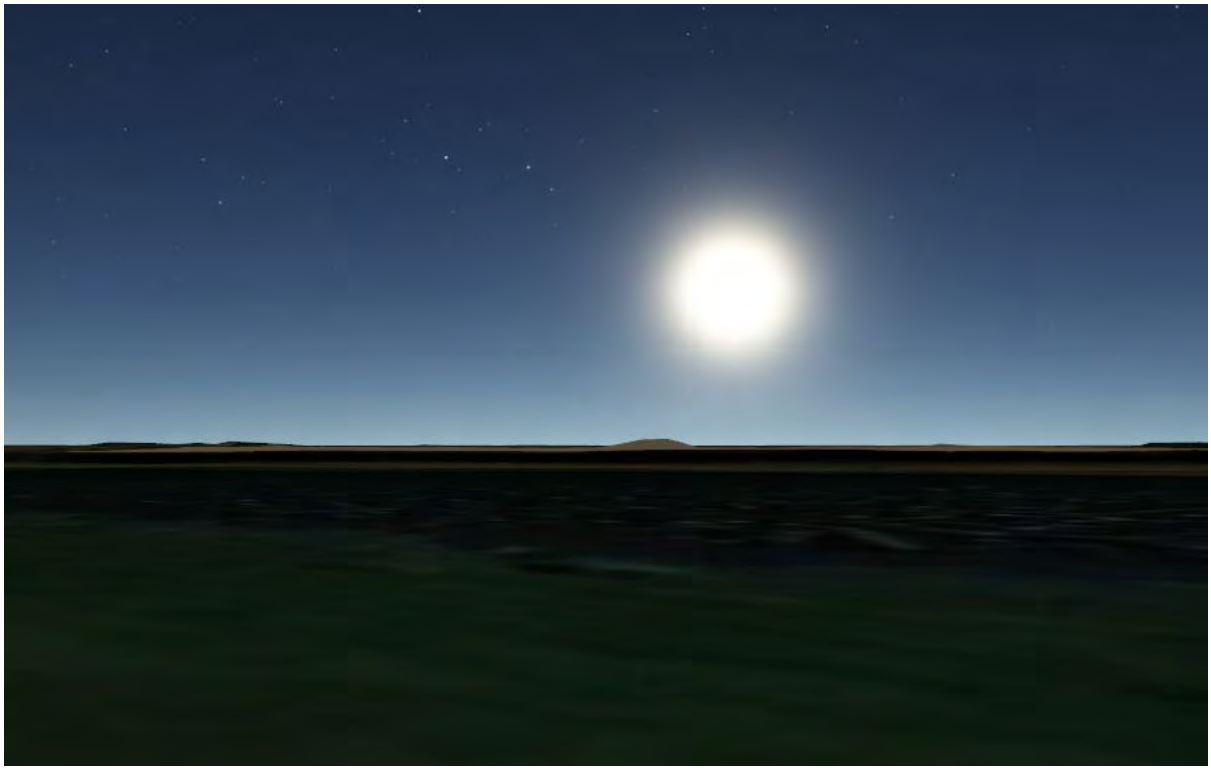

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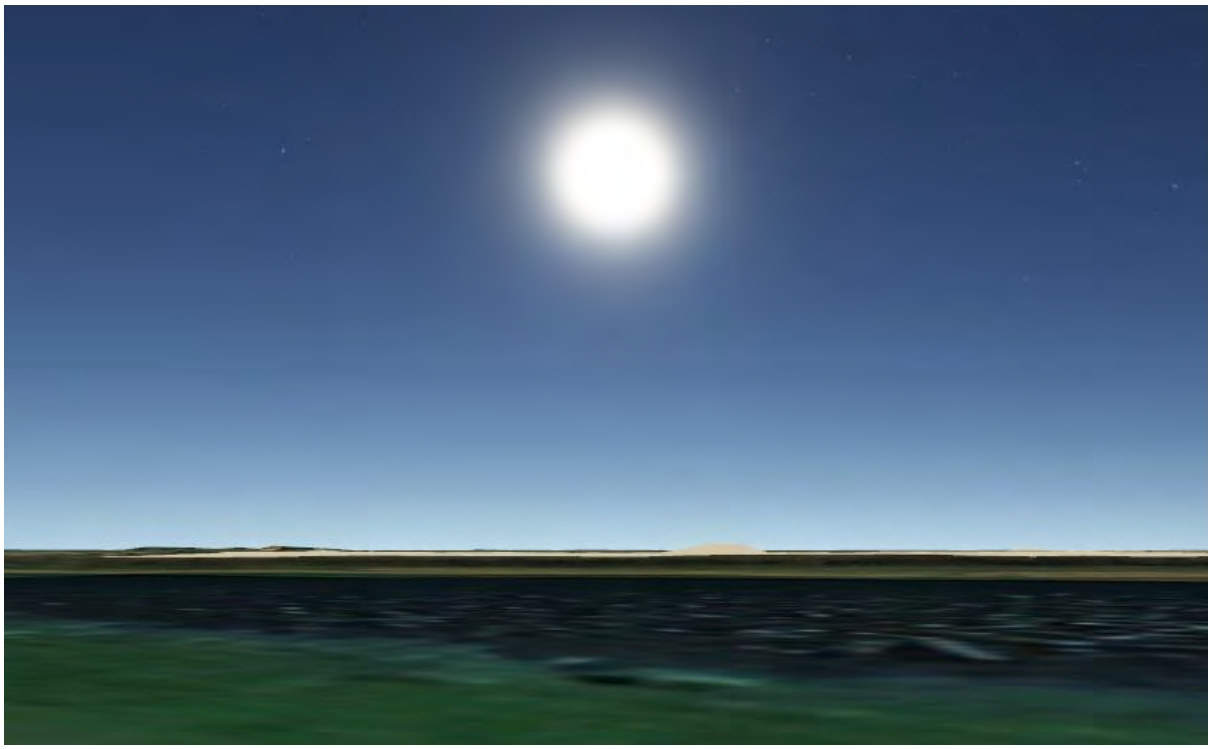

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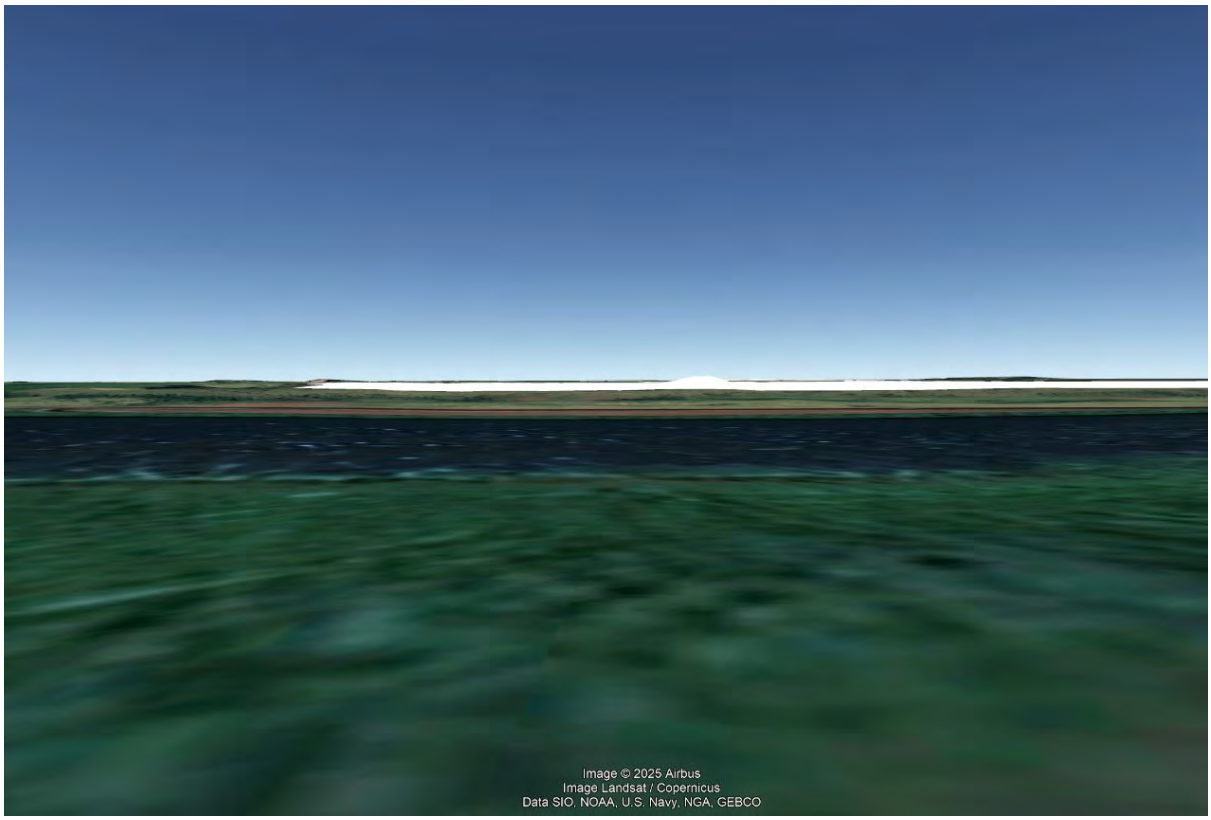
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Receptor 15

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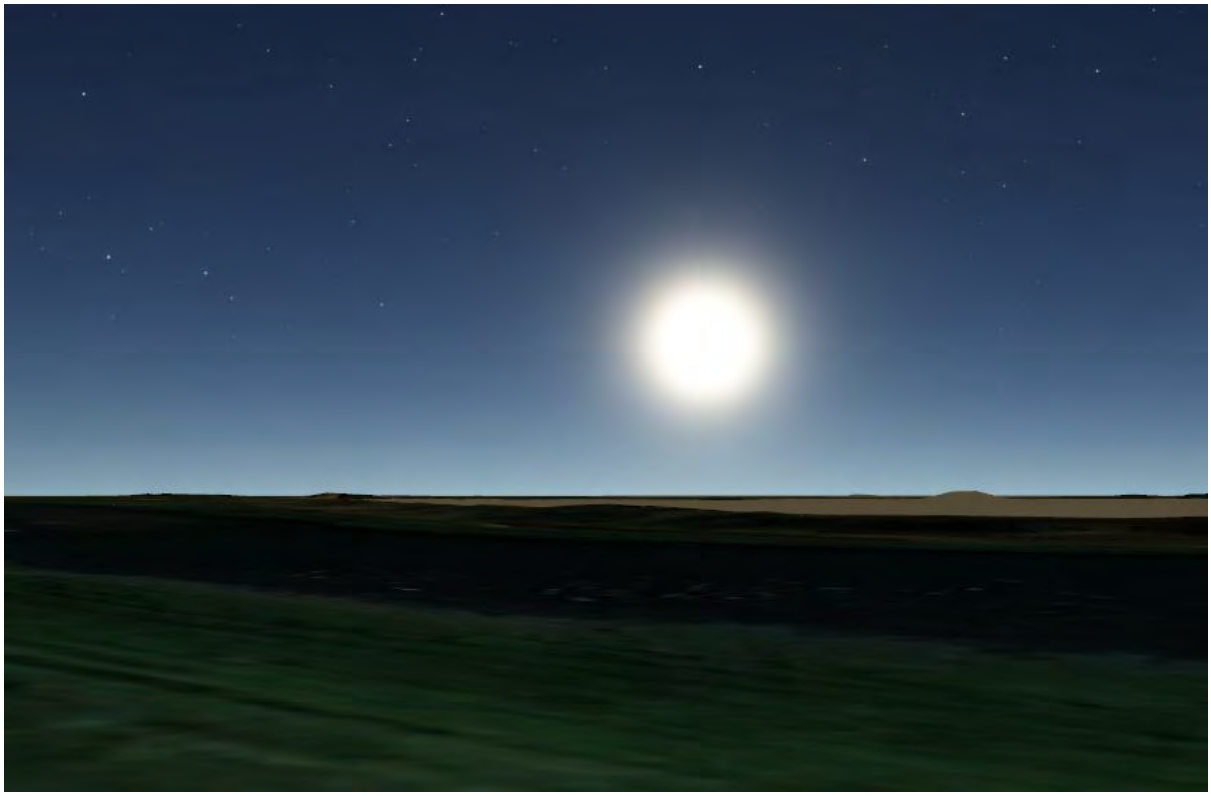

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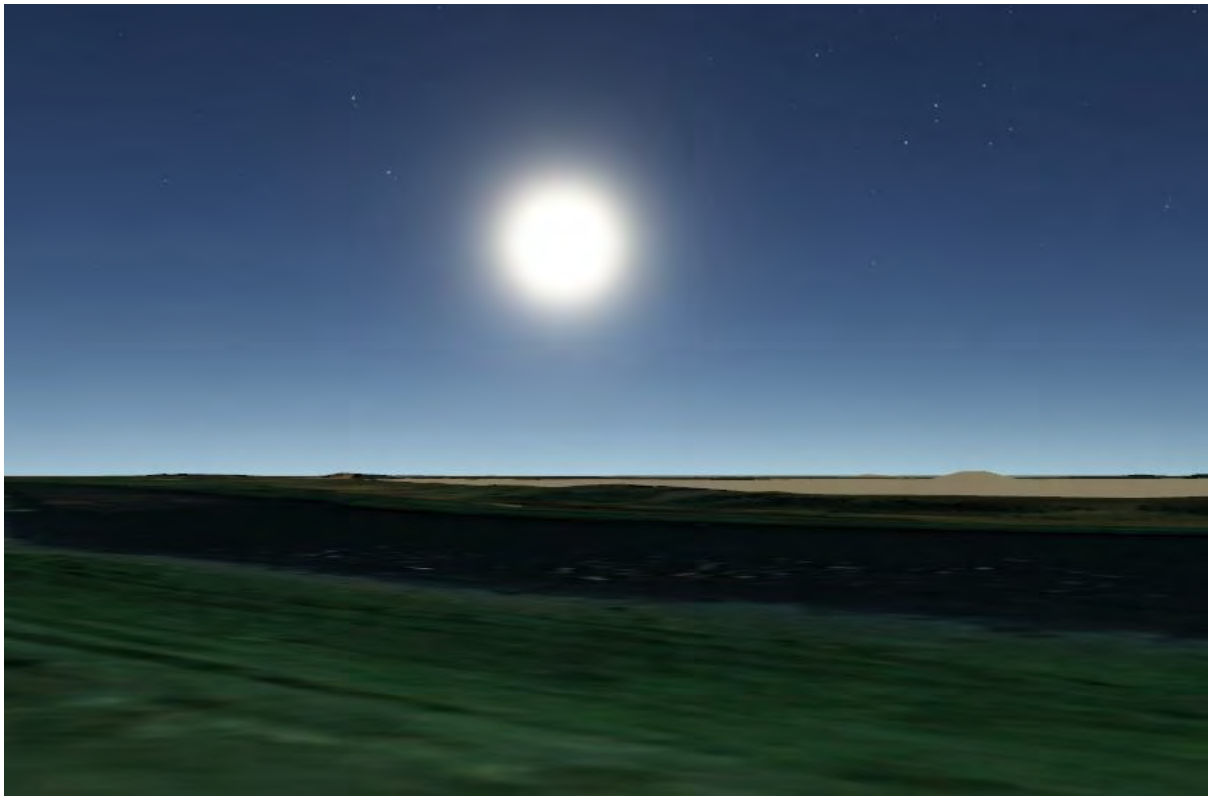

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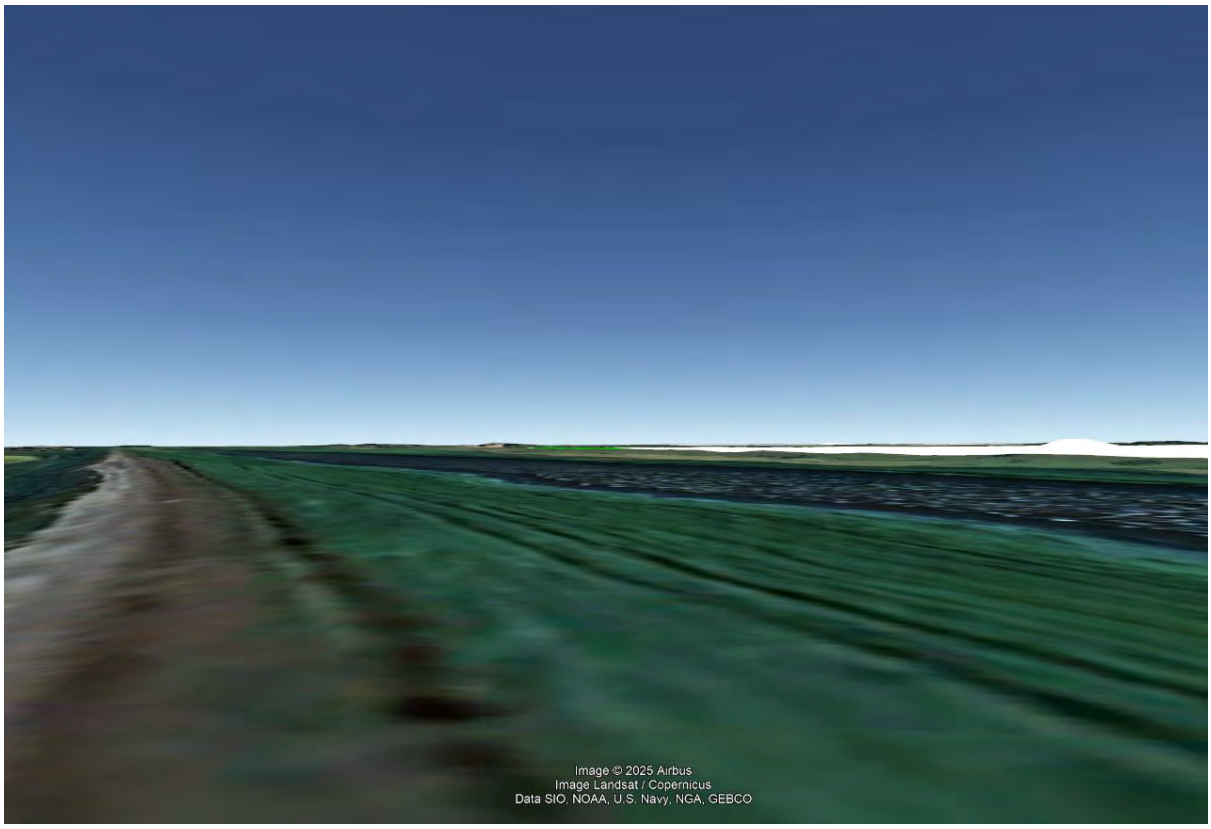
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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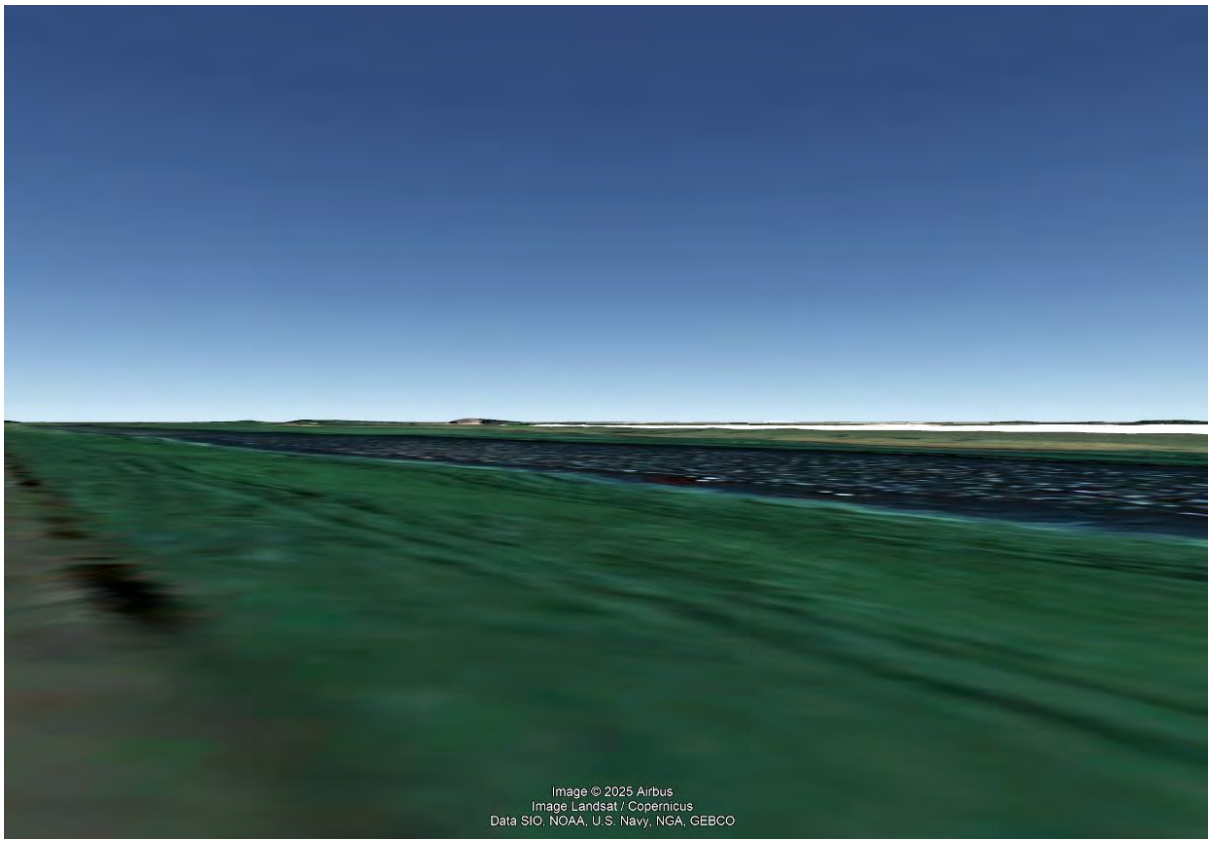
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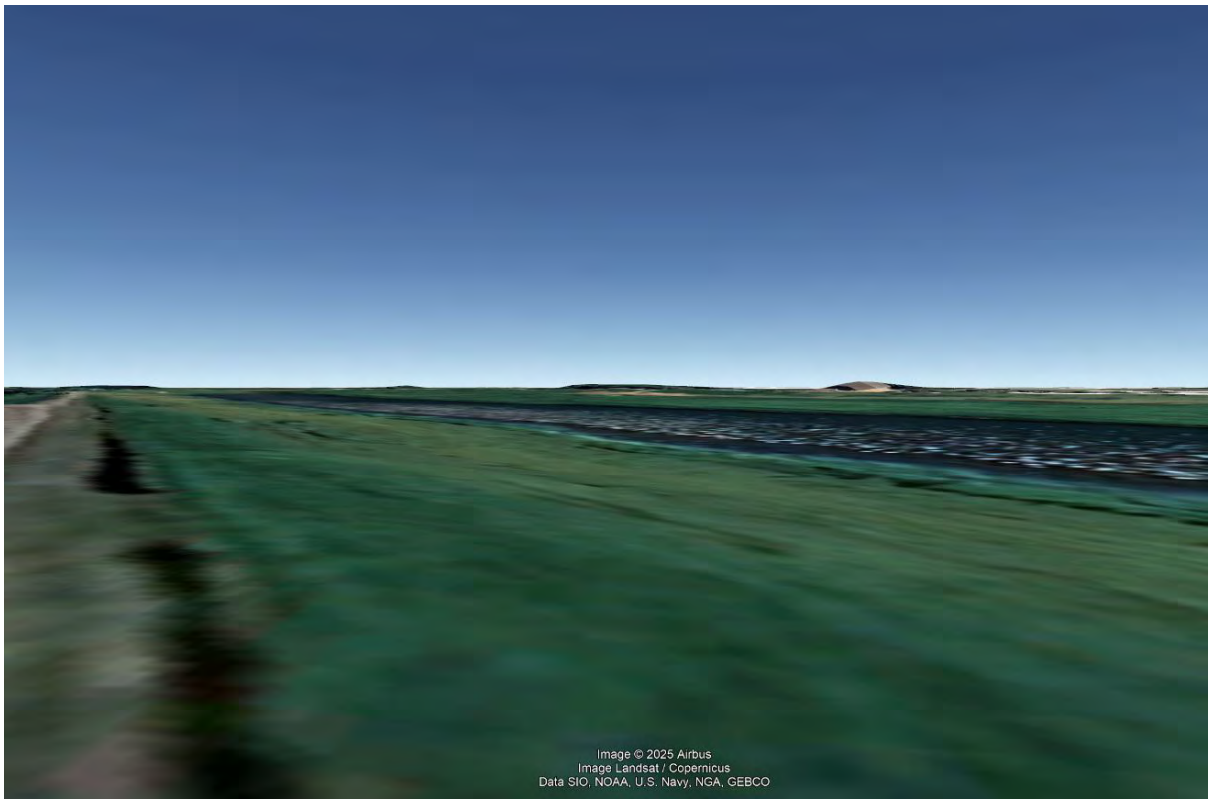
Receptor 19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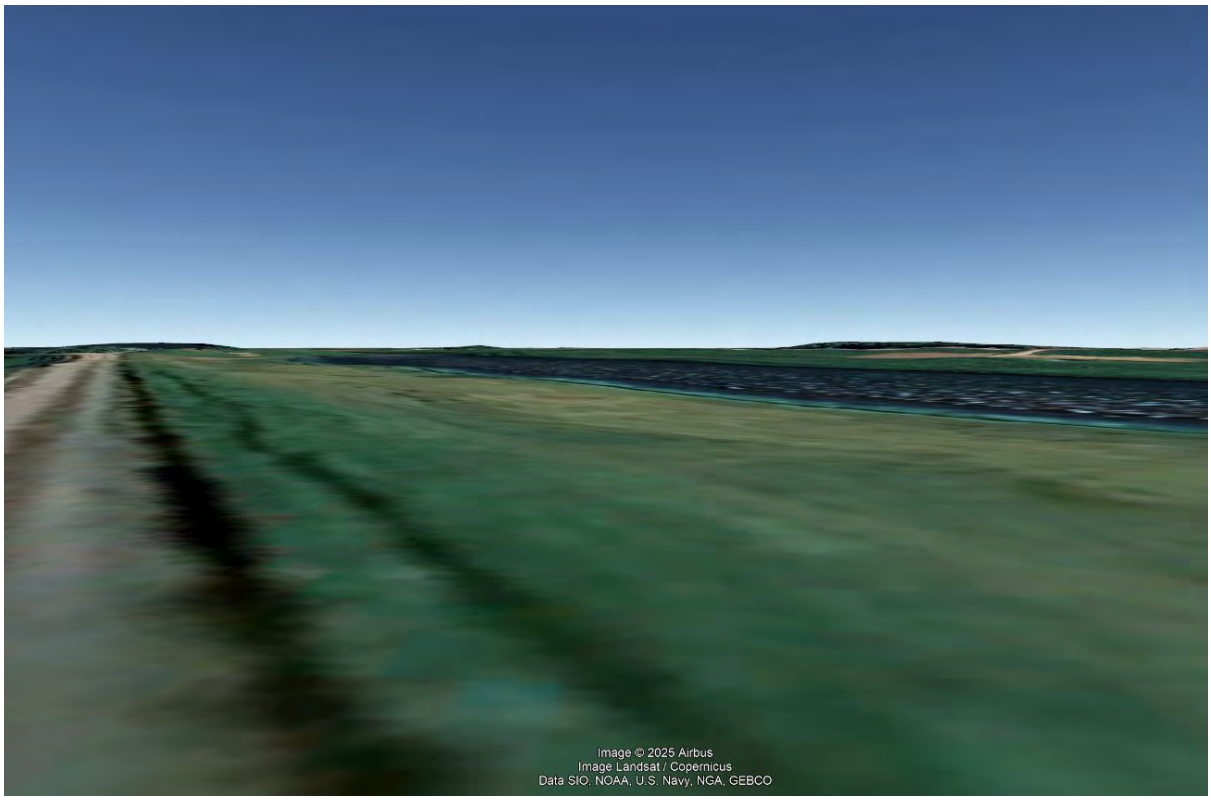
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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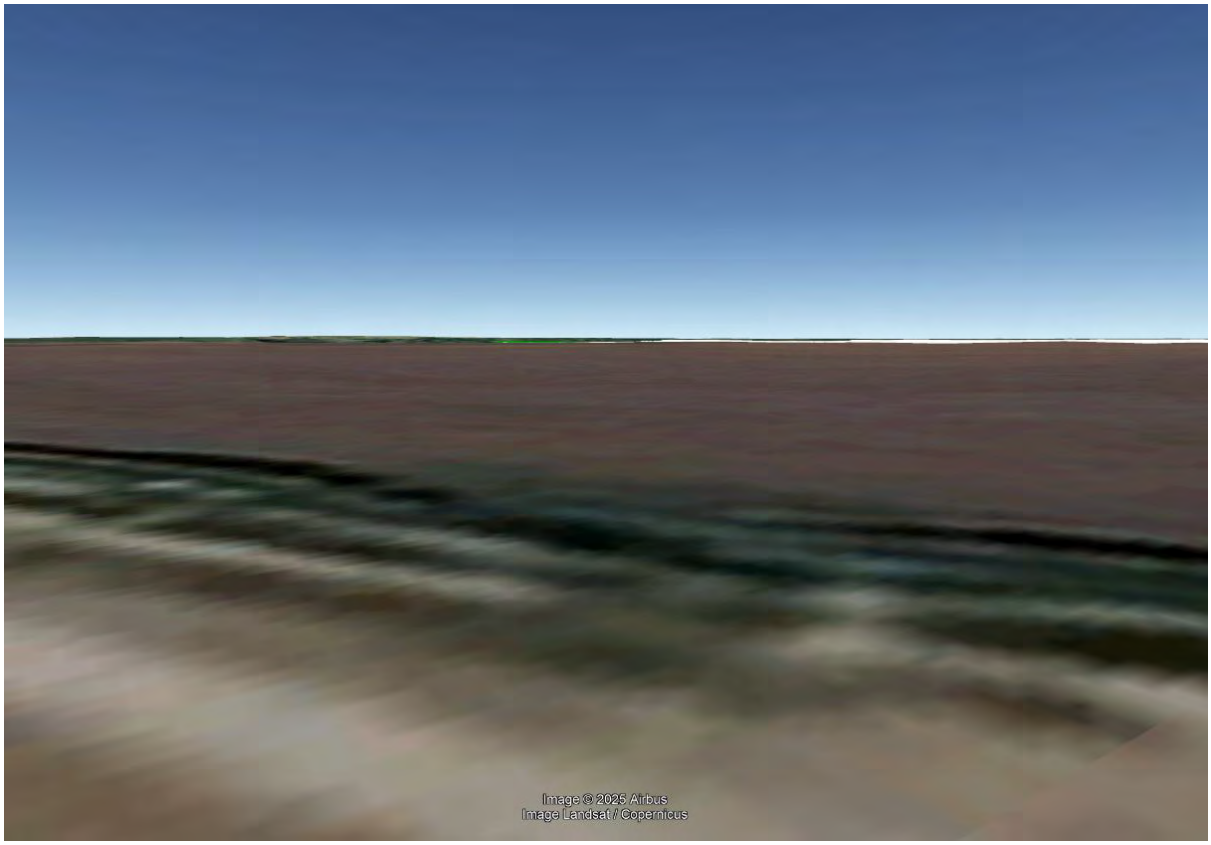
Receptor 24

West



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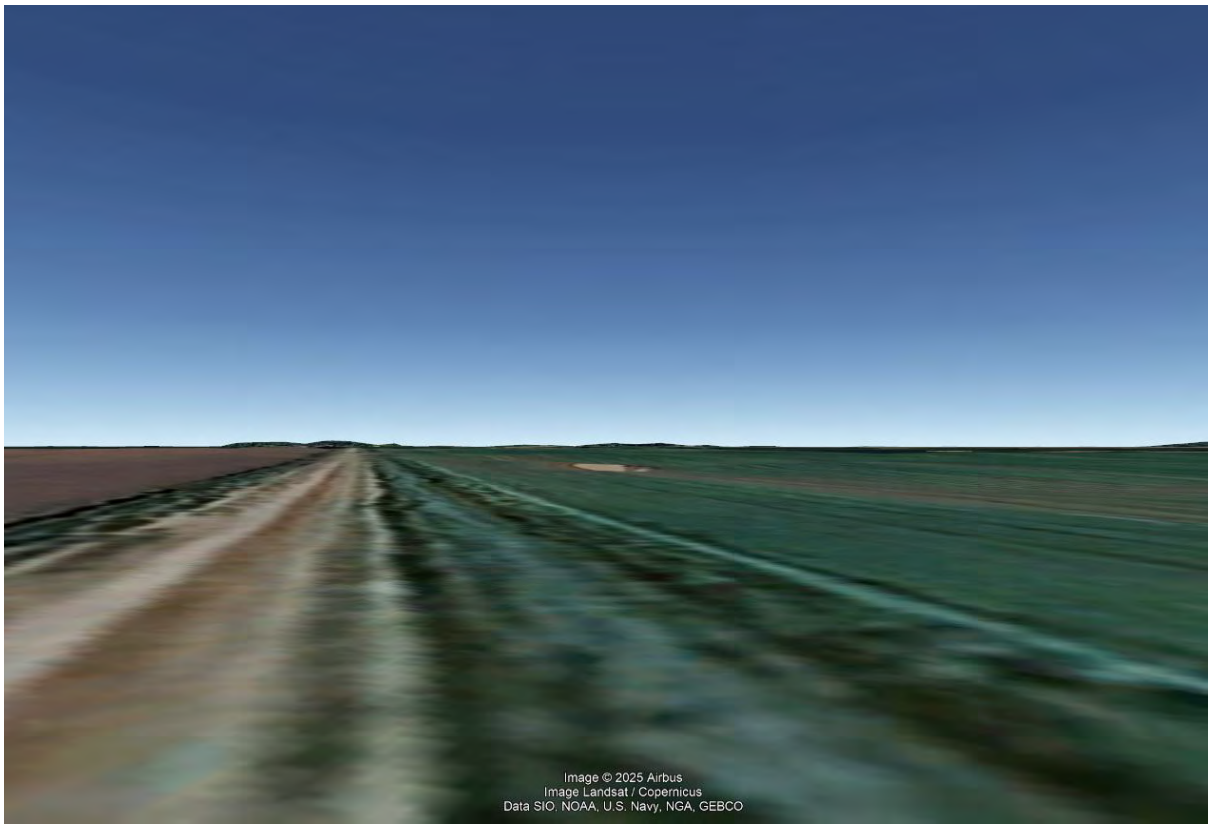
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Receptor 25

Looking West

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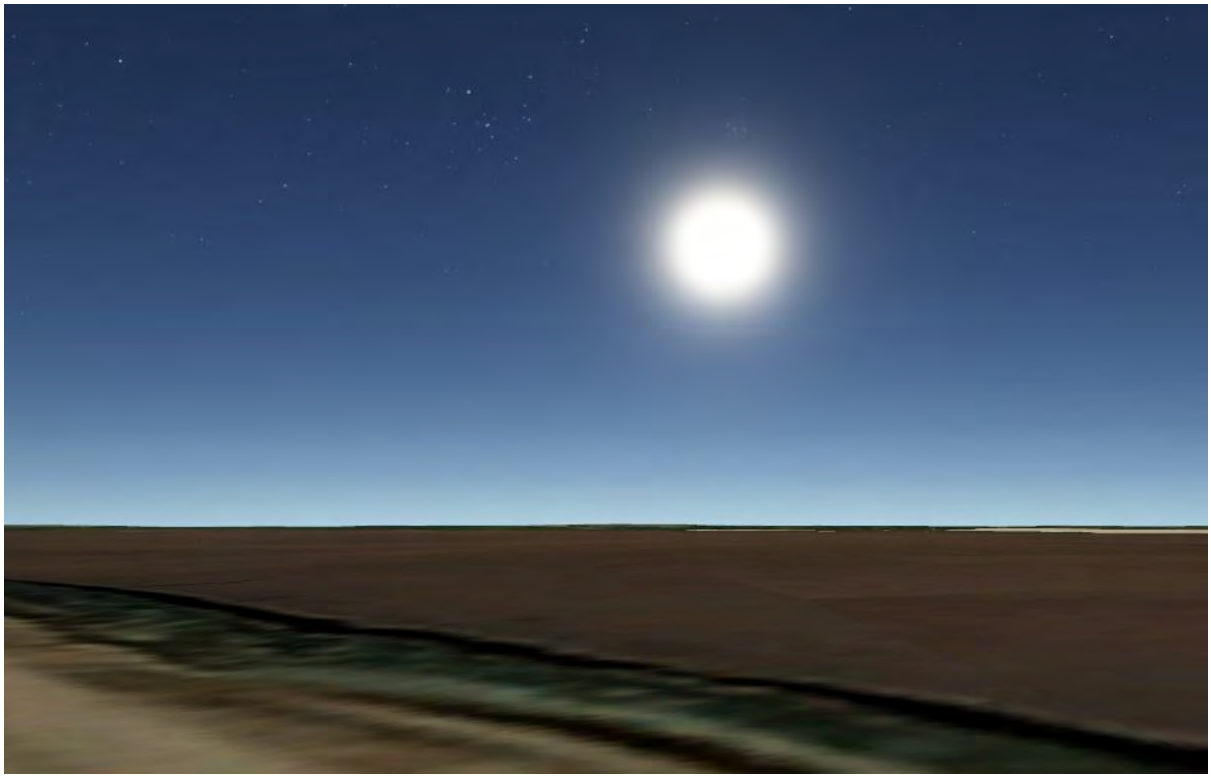

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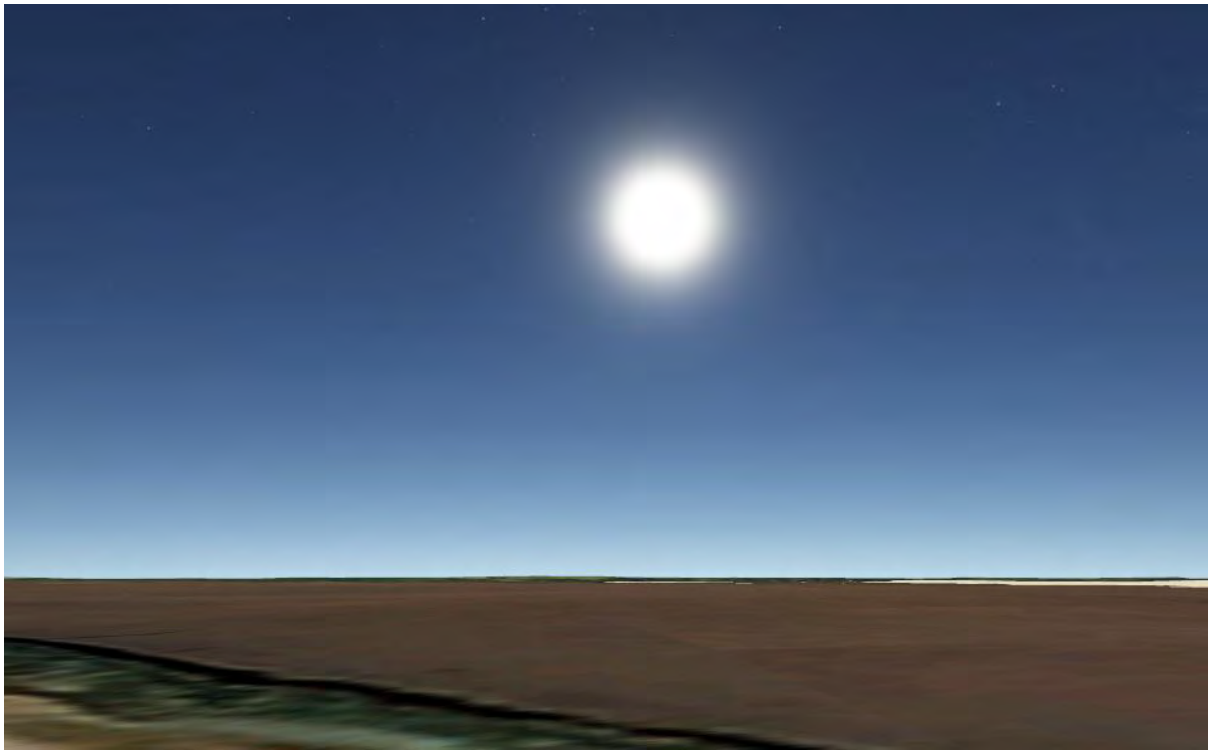

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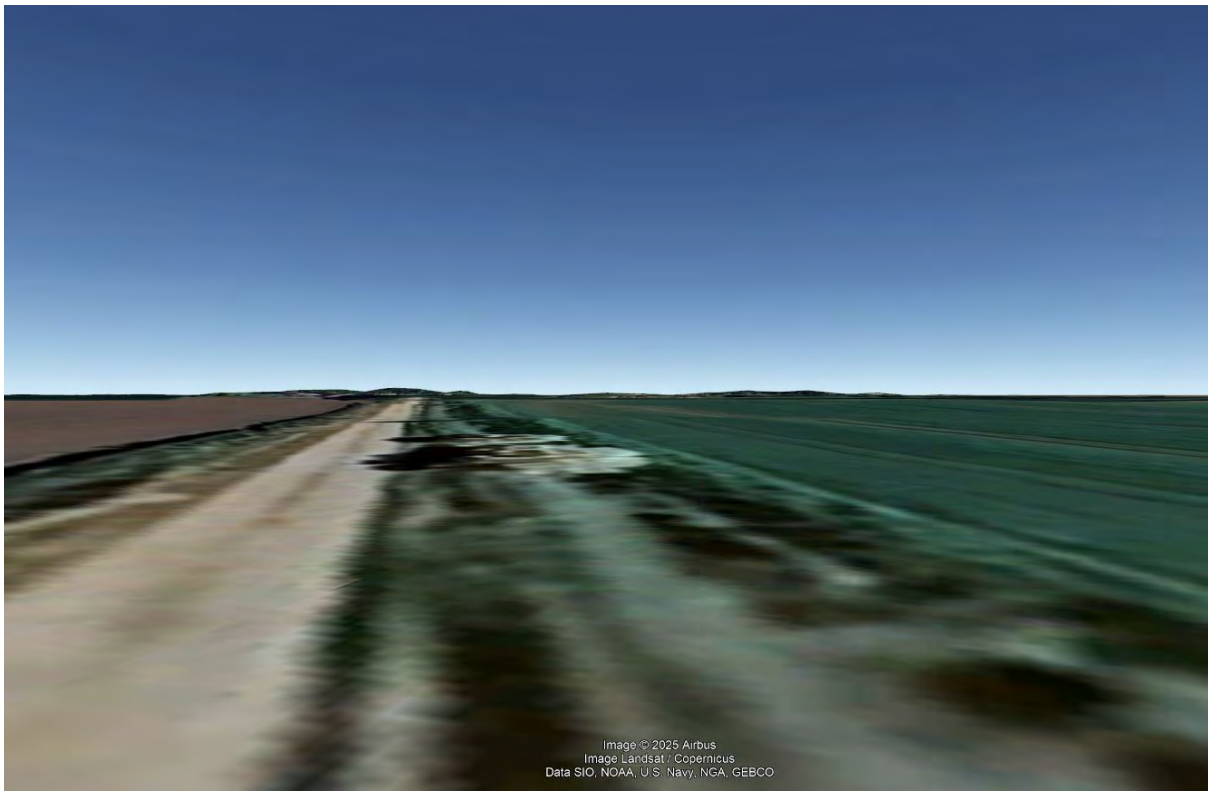

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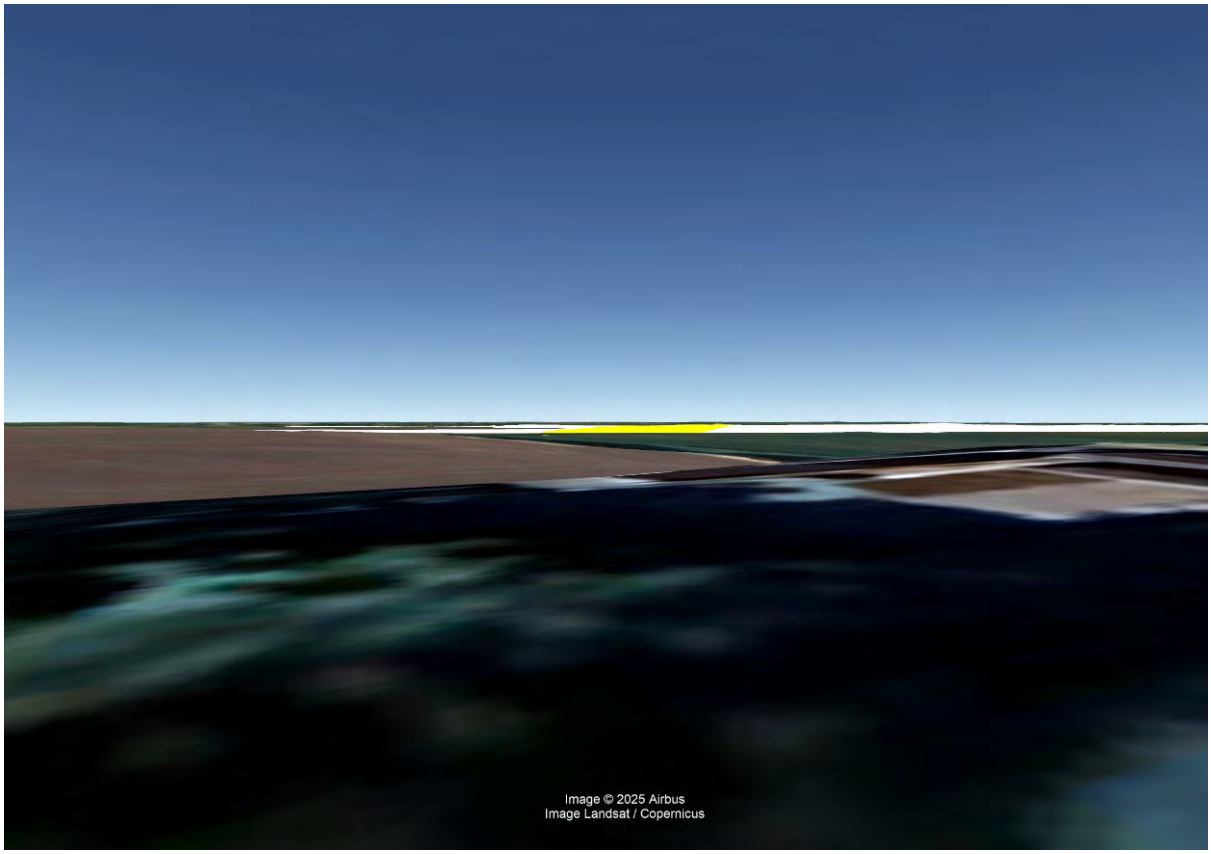
Looking West



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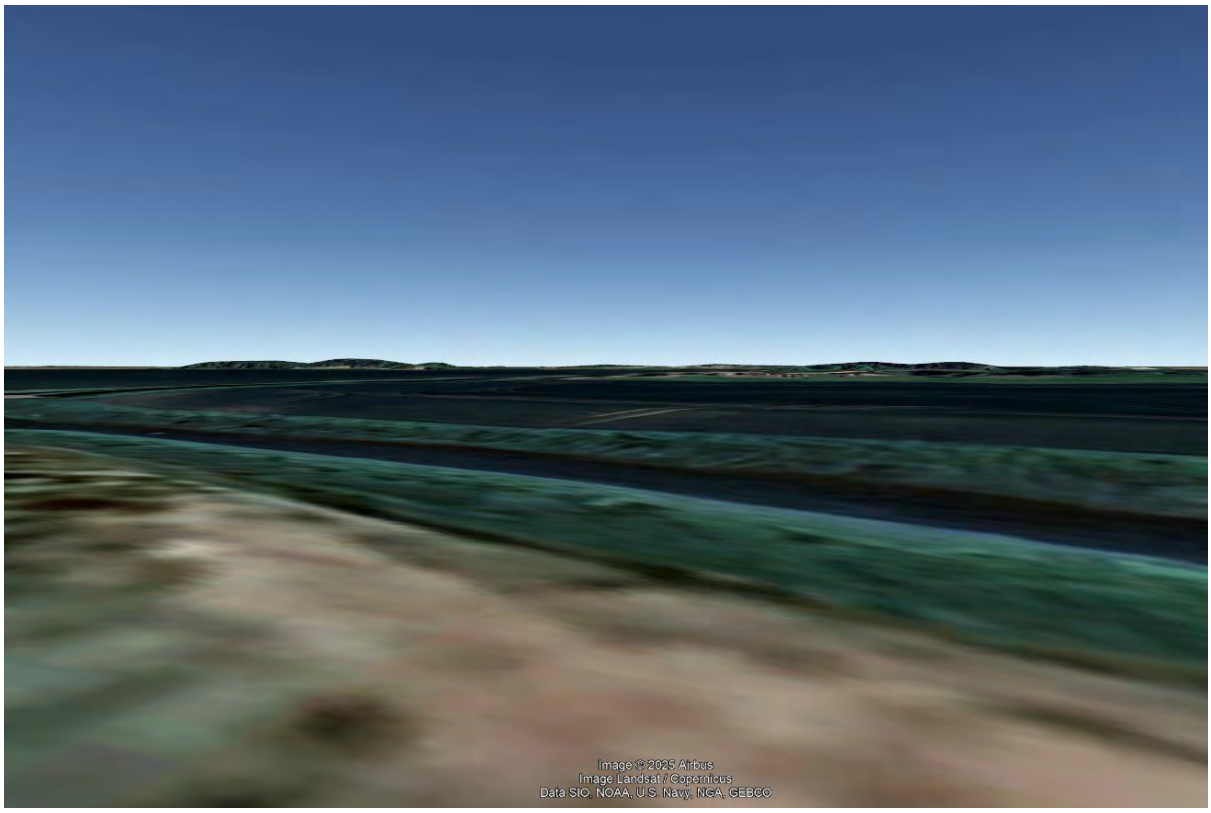

Receptor 27

Looking West

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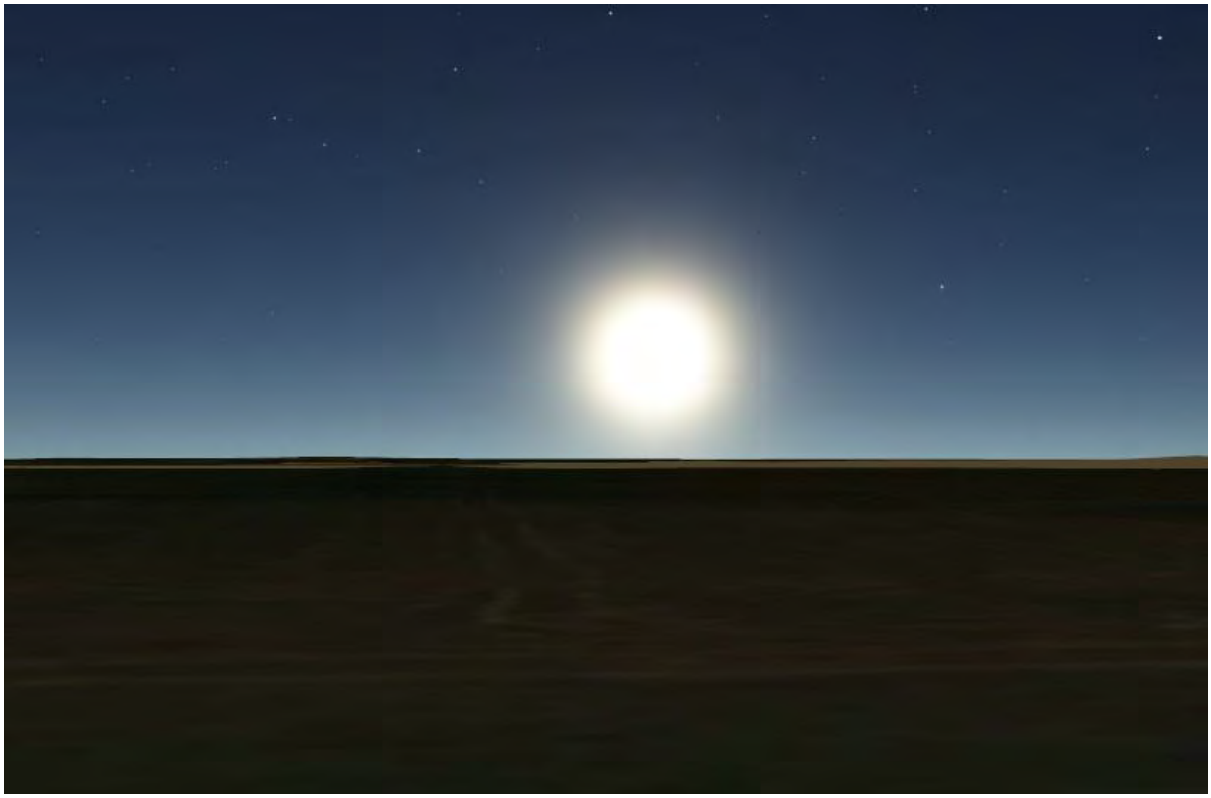

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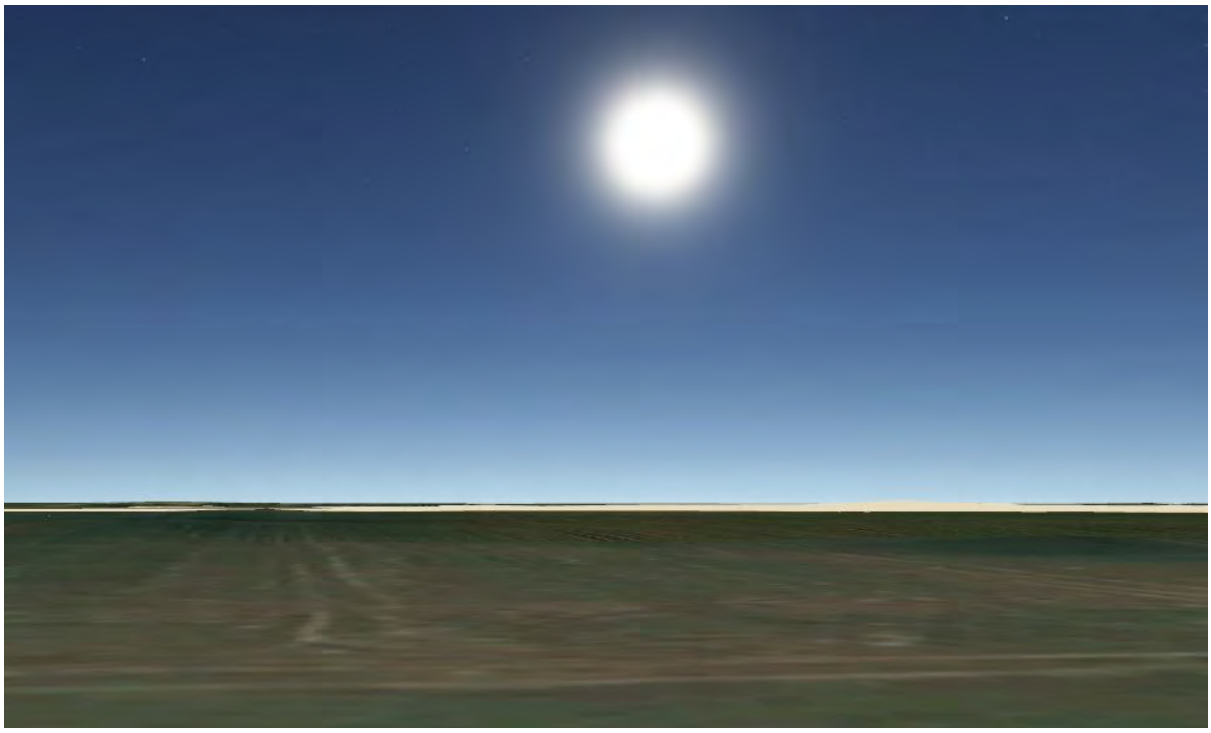

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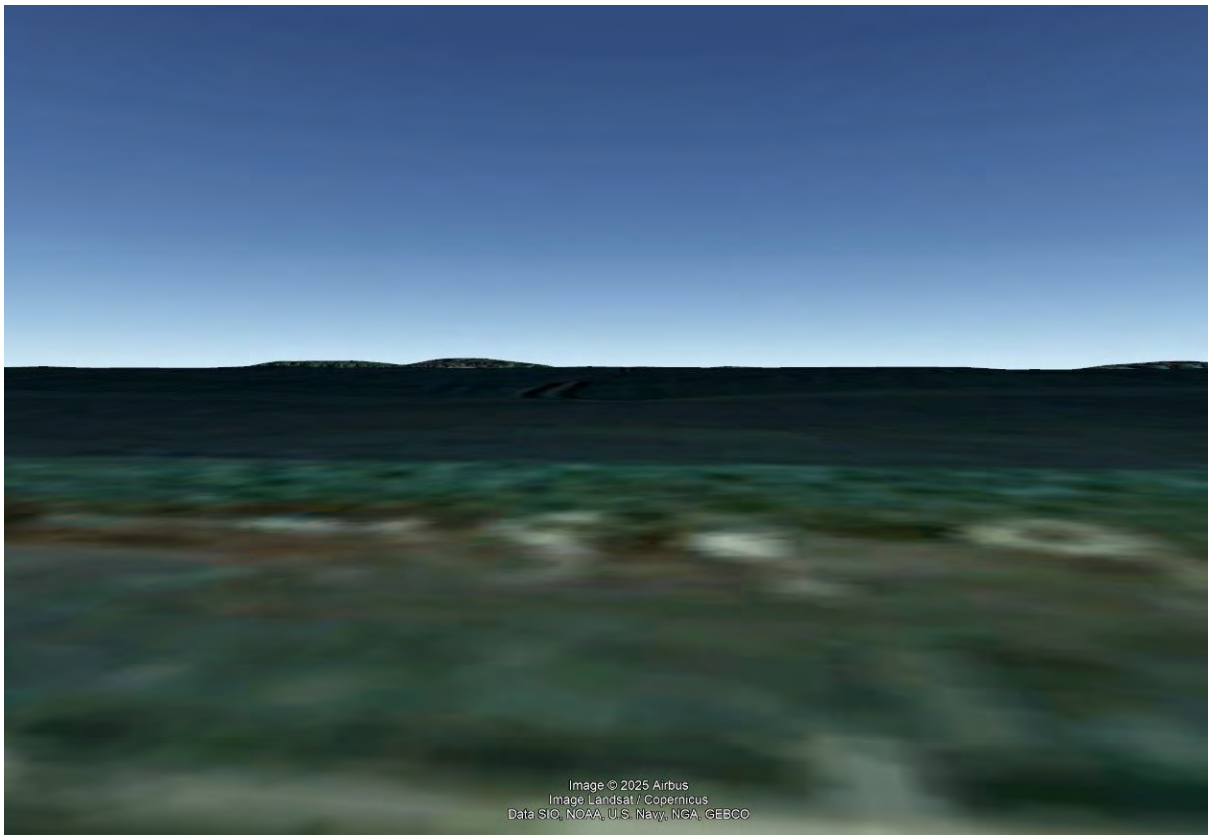
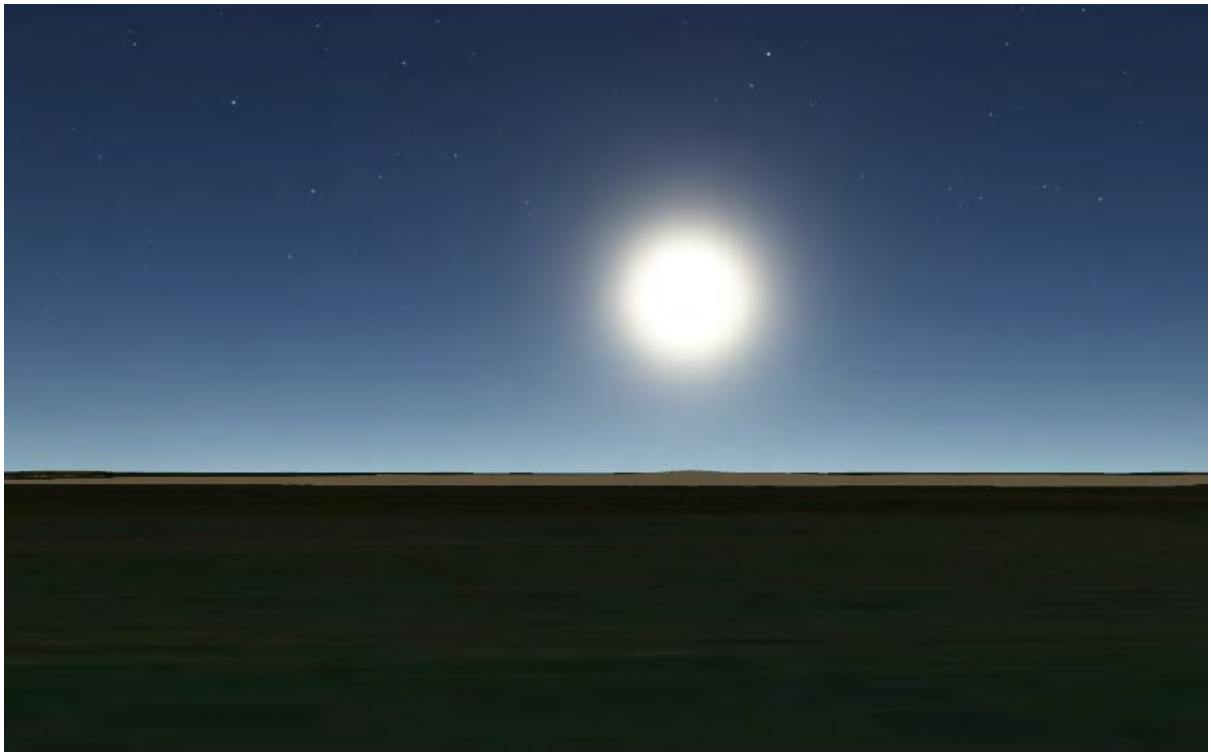


Receptor 28

Looking West

April 15th 18:00 UTC



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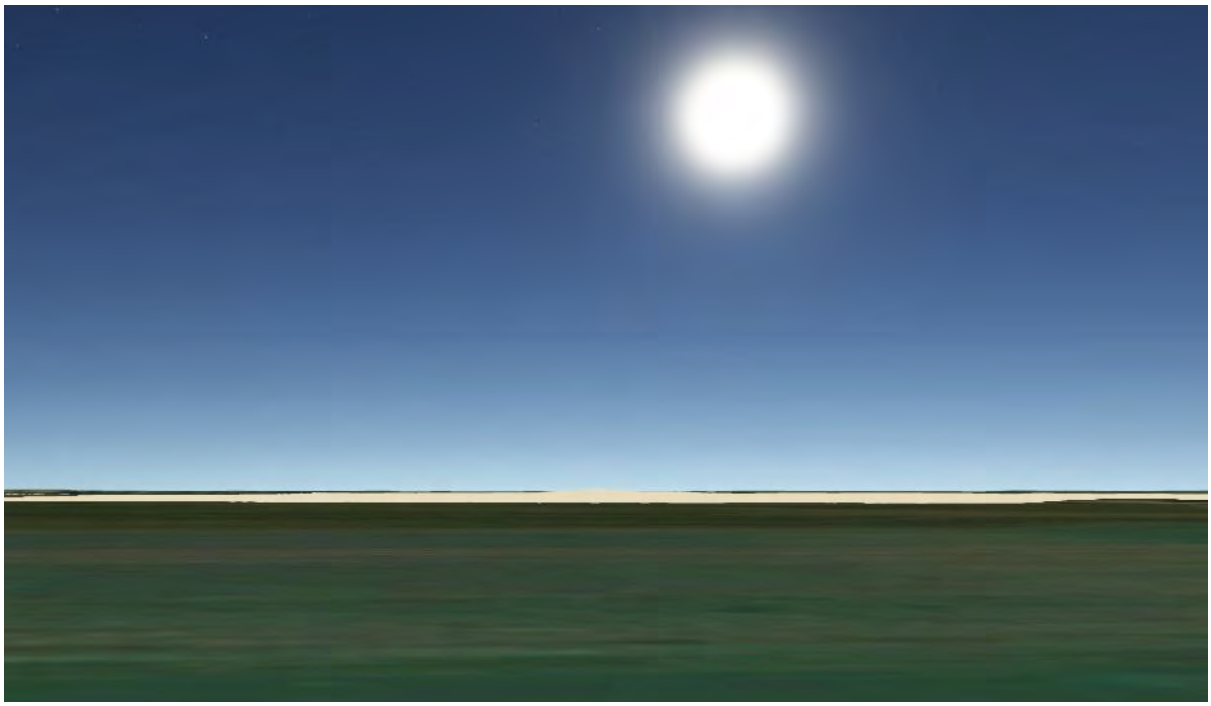

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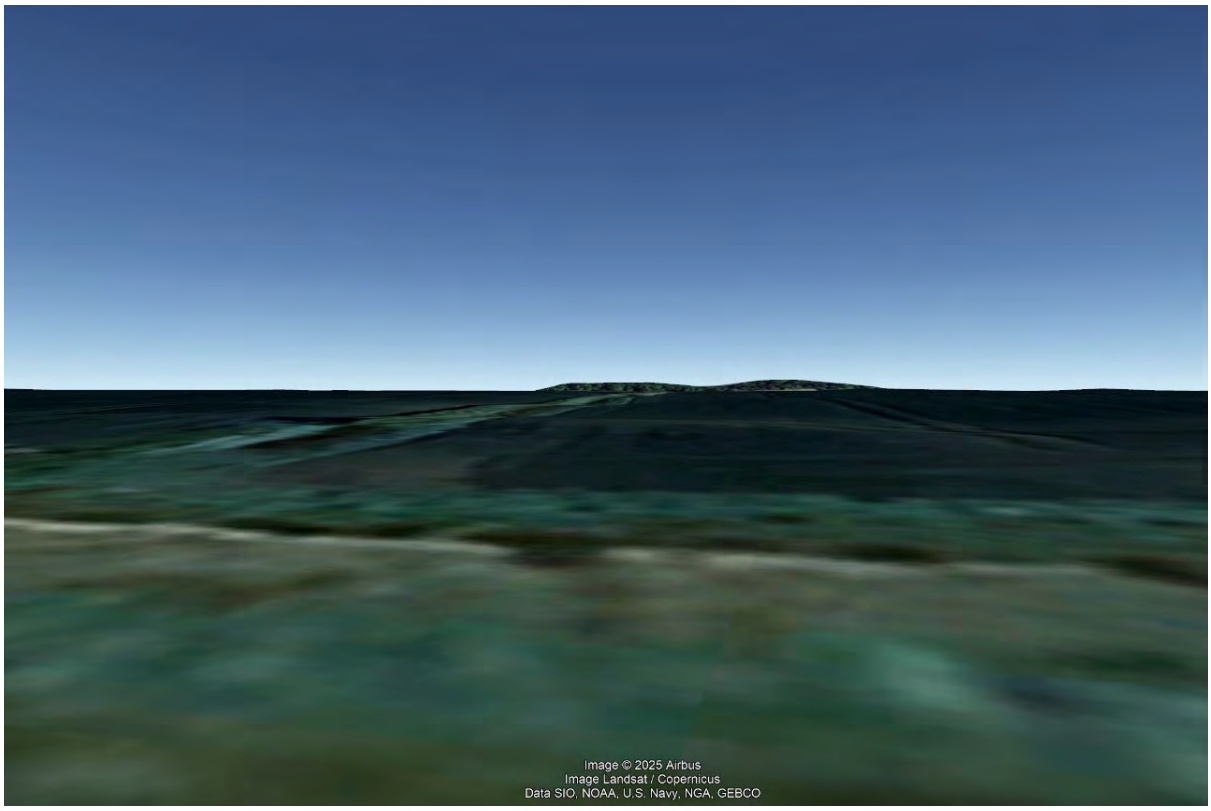
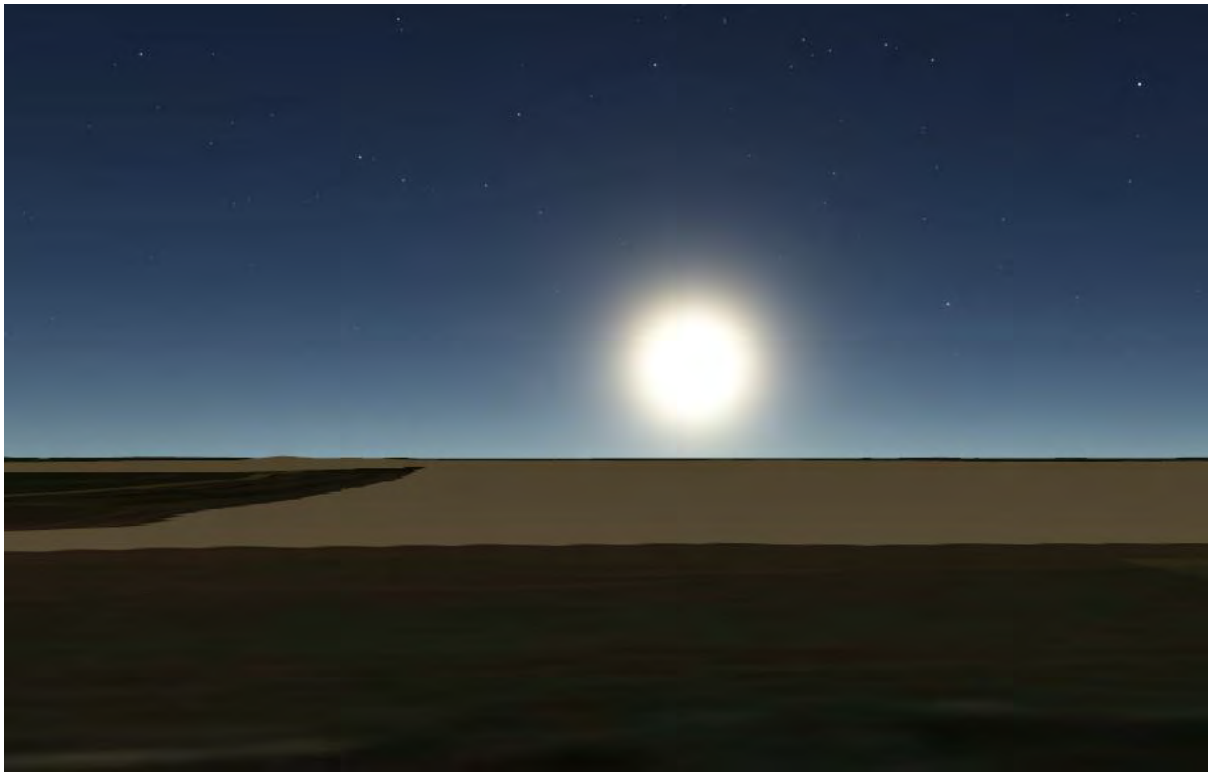


Receptor 29

Looking West

April 1st 18:00 UTC



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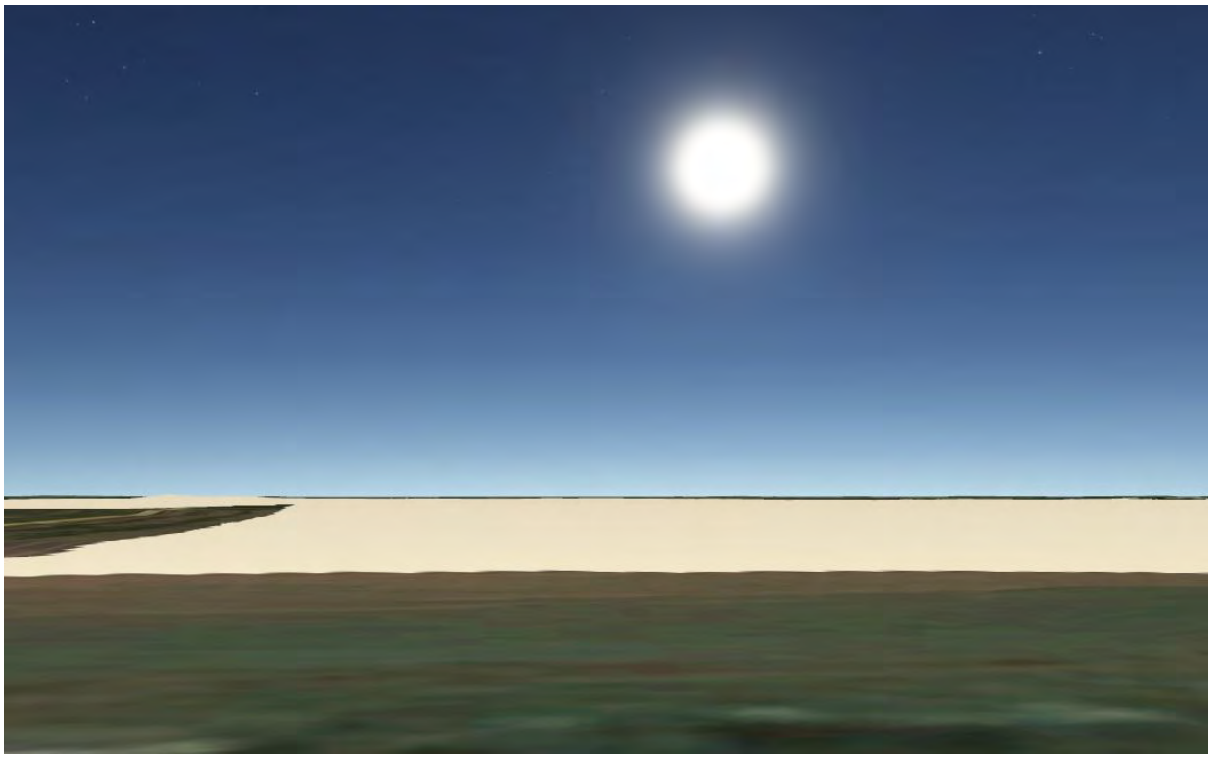
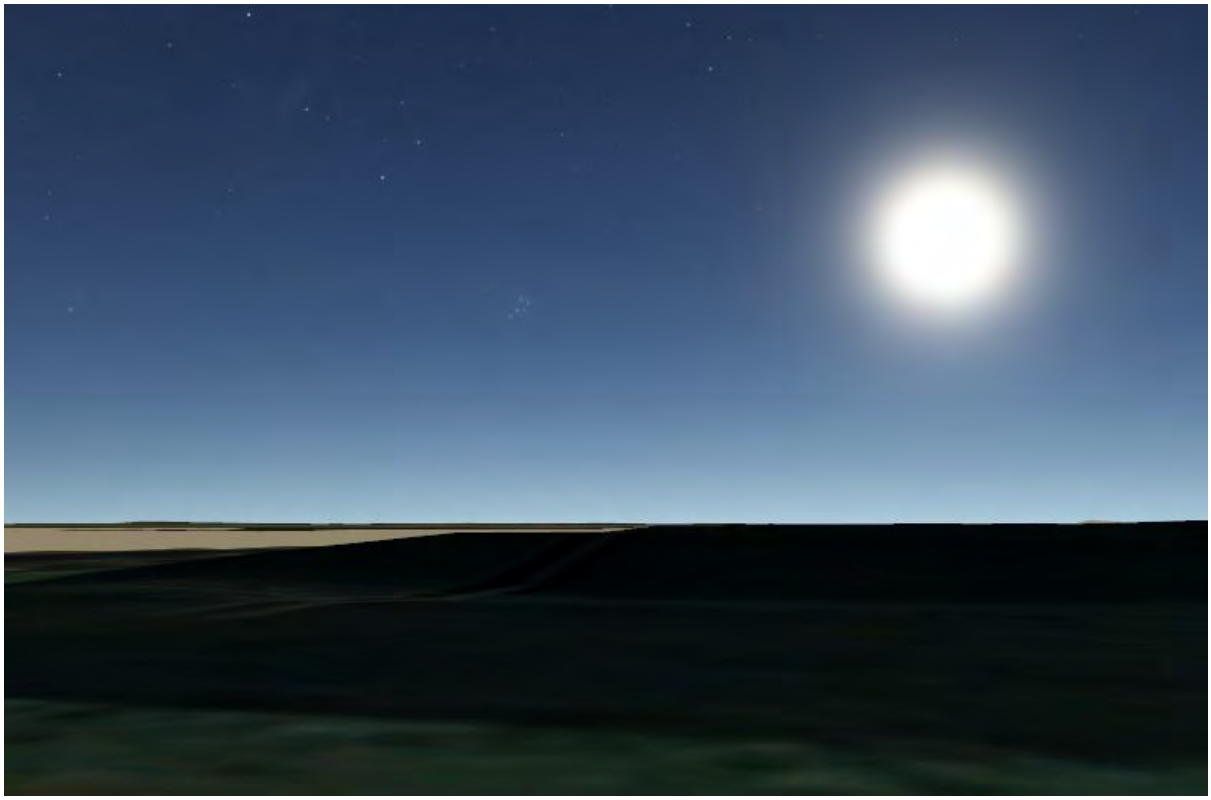
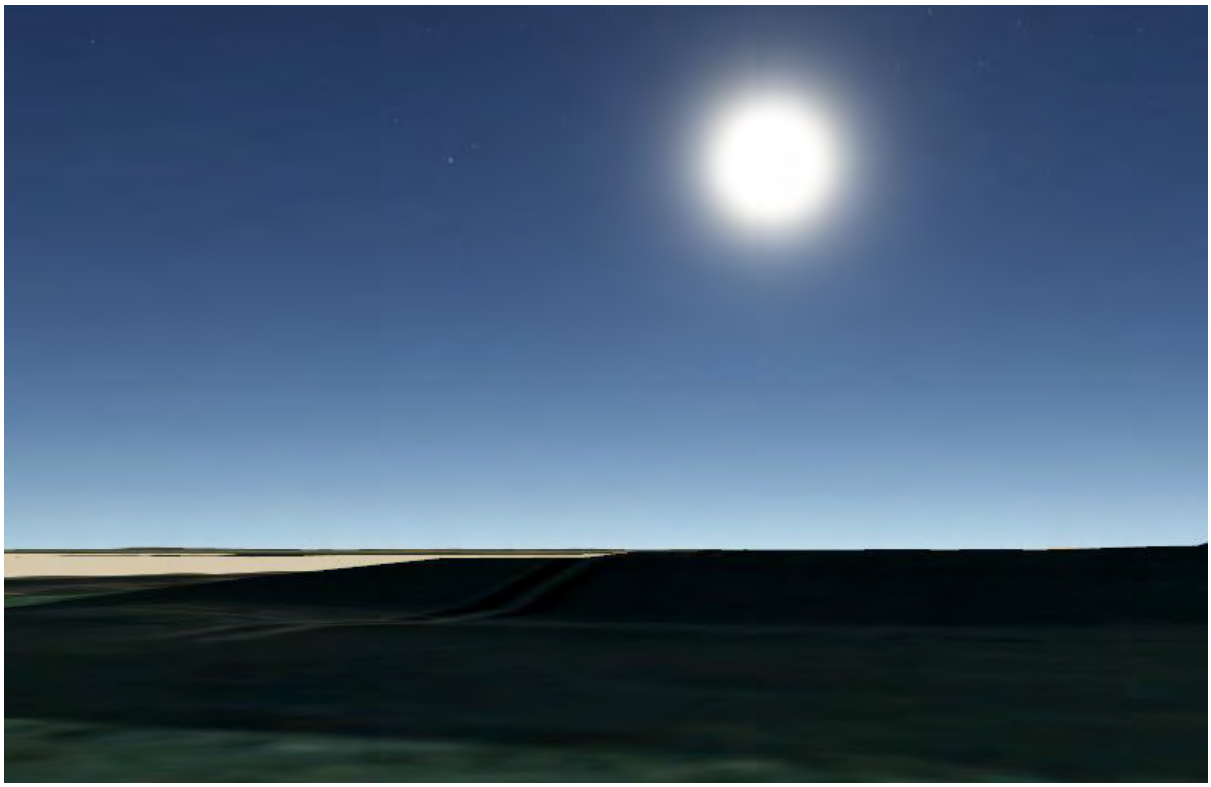


Looking East

May 1st 06:00 UTC



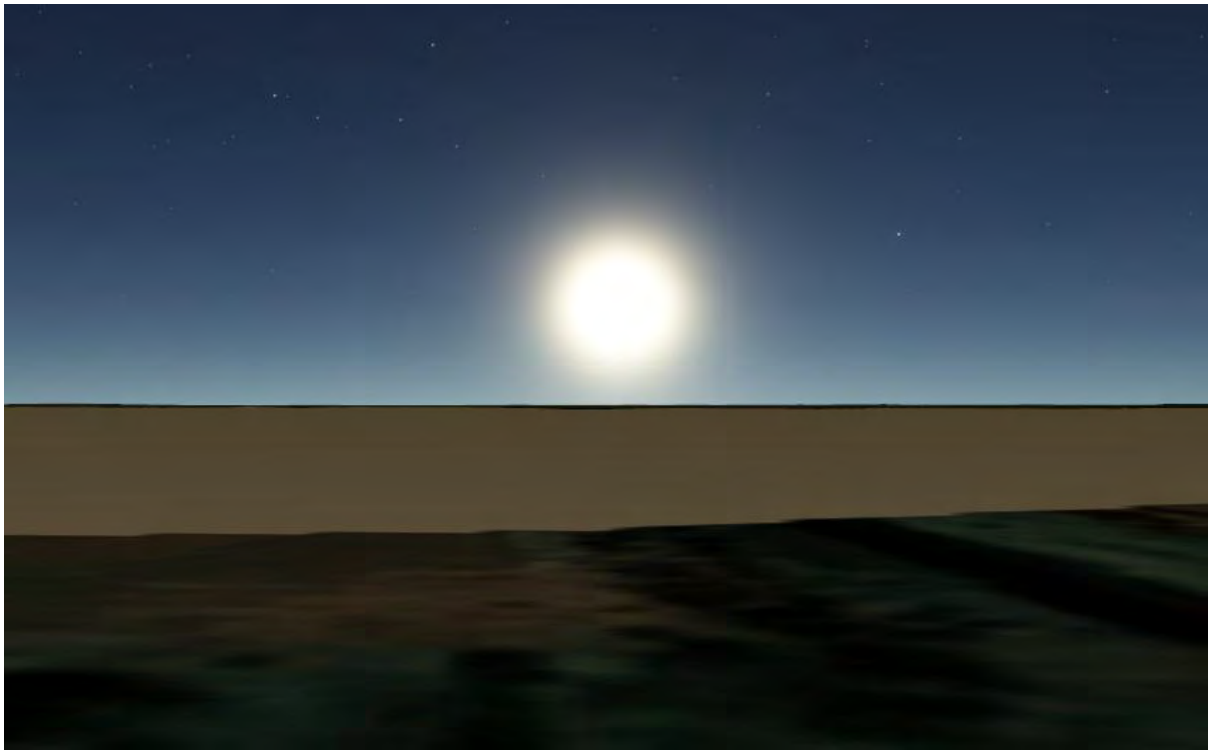
July 1st 06:00 UTC



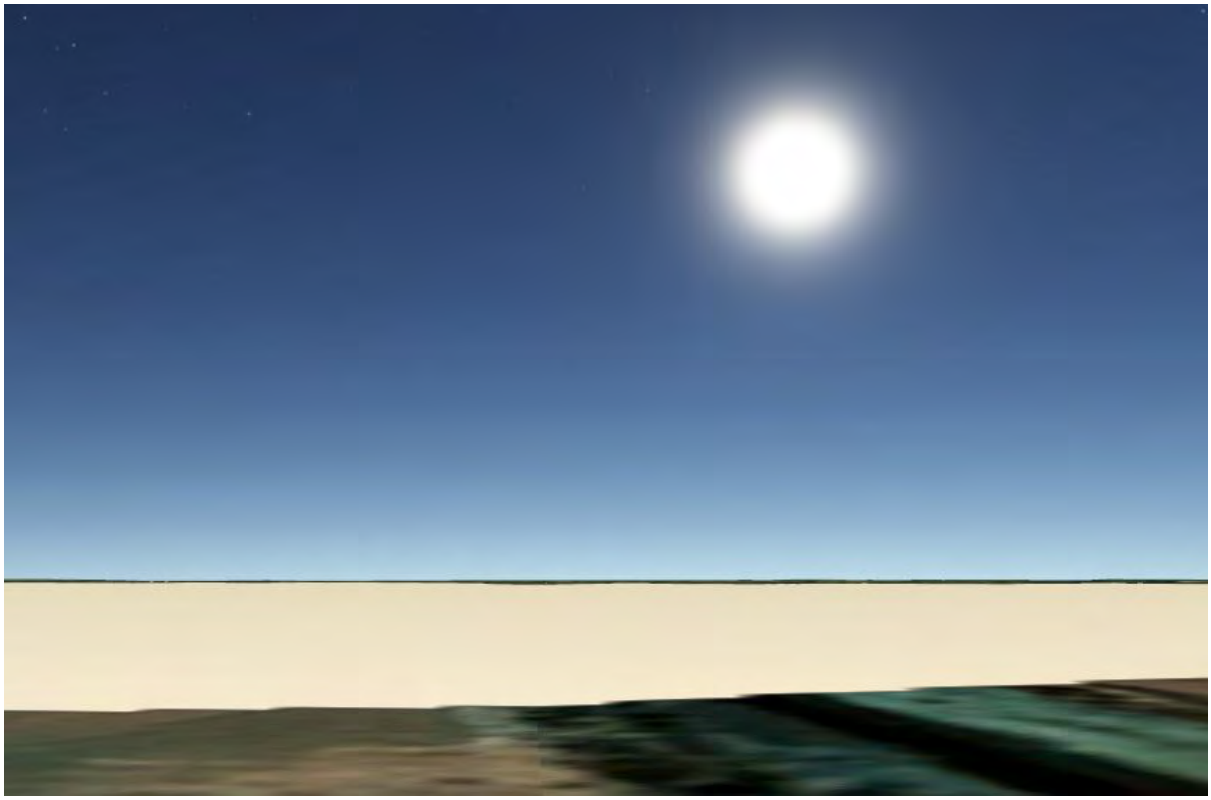
Receptor 30

Looking West

April 1st 18:00 UTC

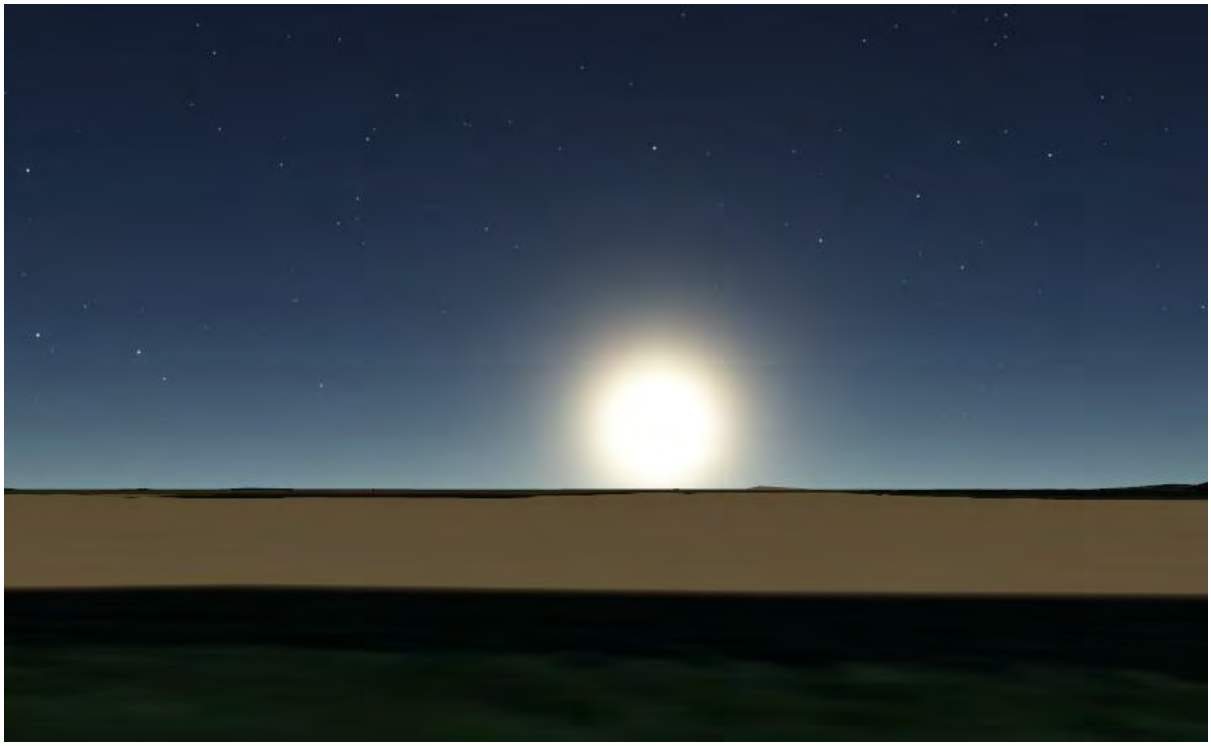


July 1st 18:00 UTC

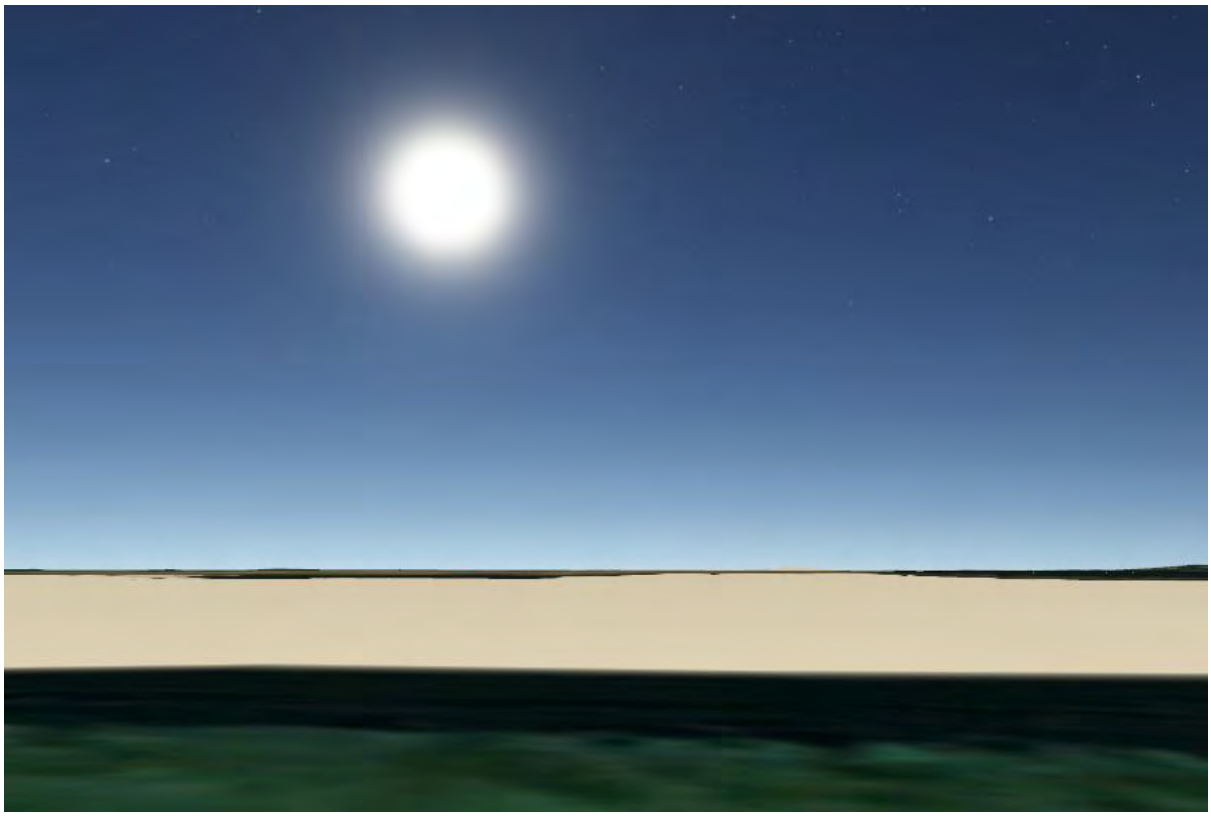


Looking East

April 1st 06:00 UTC



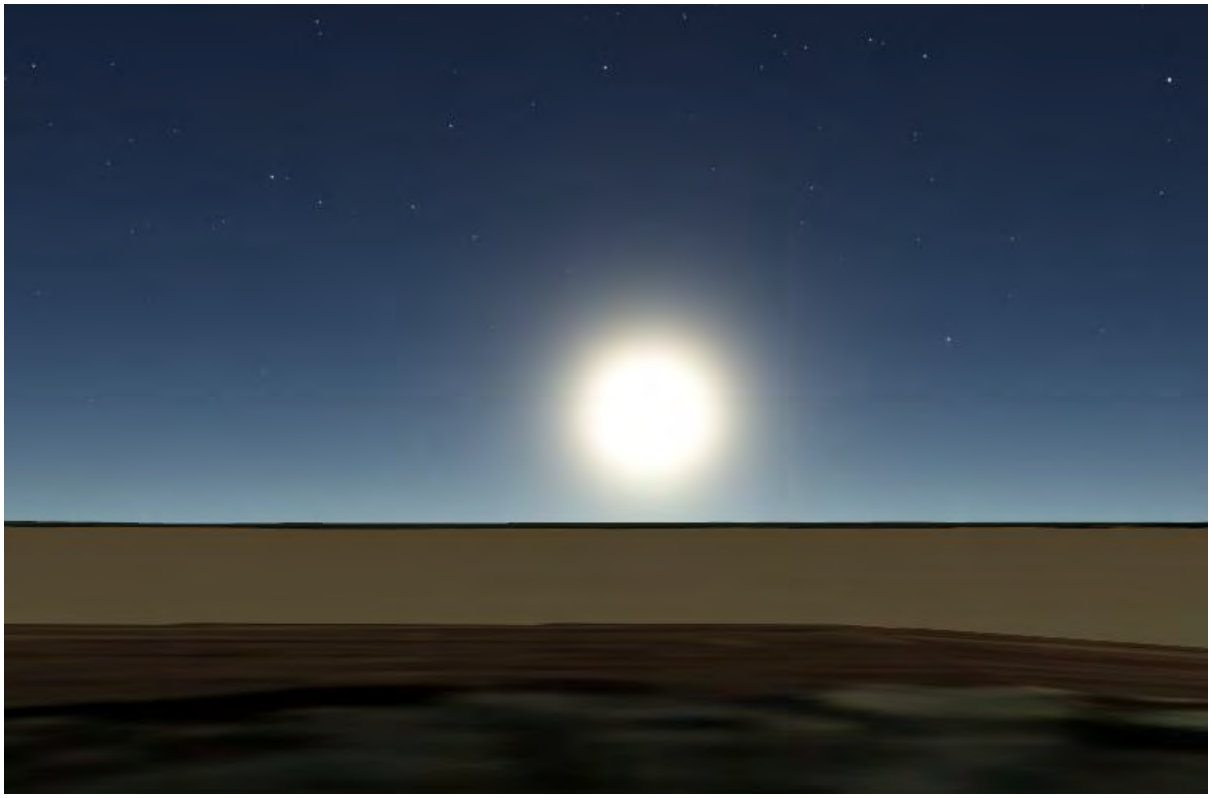
July 1st 06:00 UTC



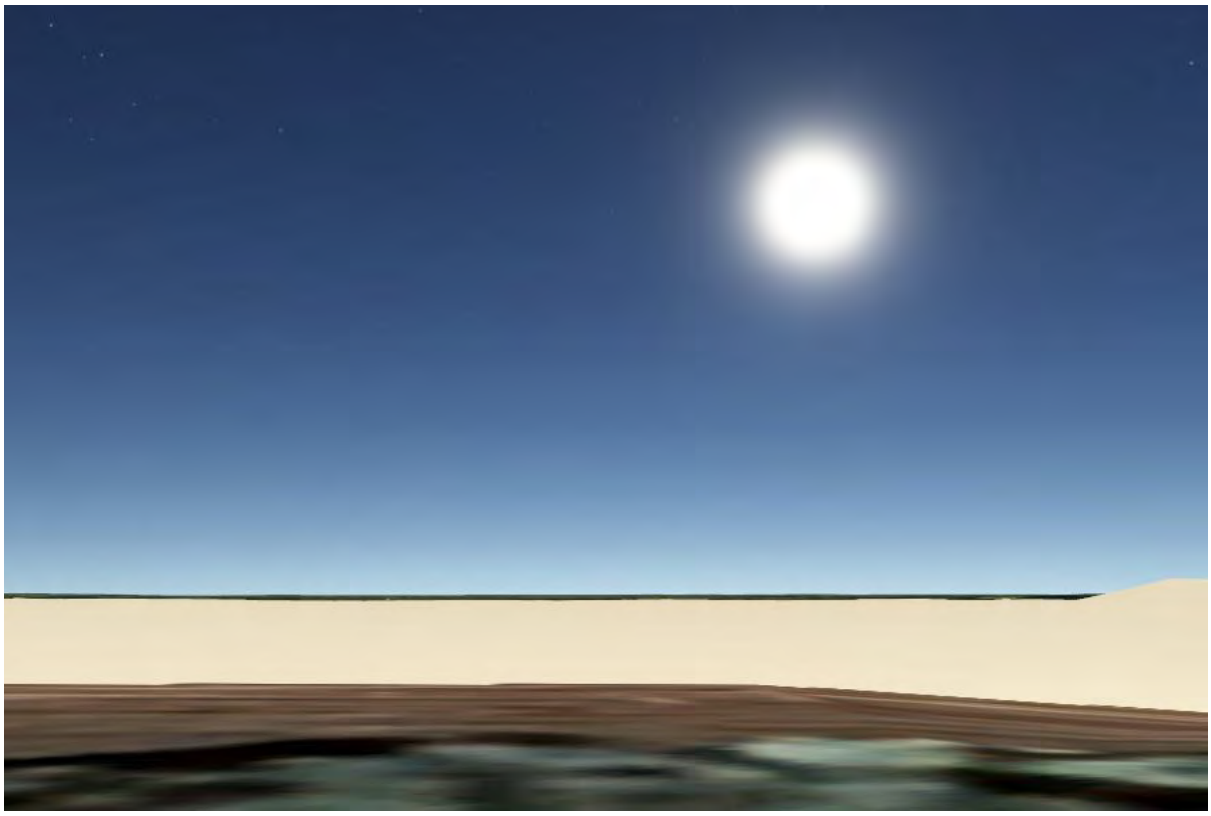
Receptor 31

Looking West

April 1st 18:00 UTC

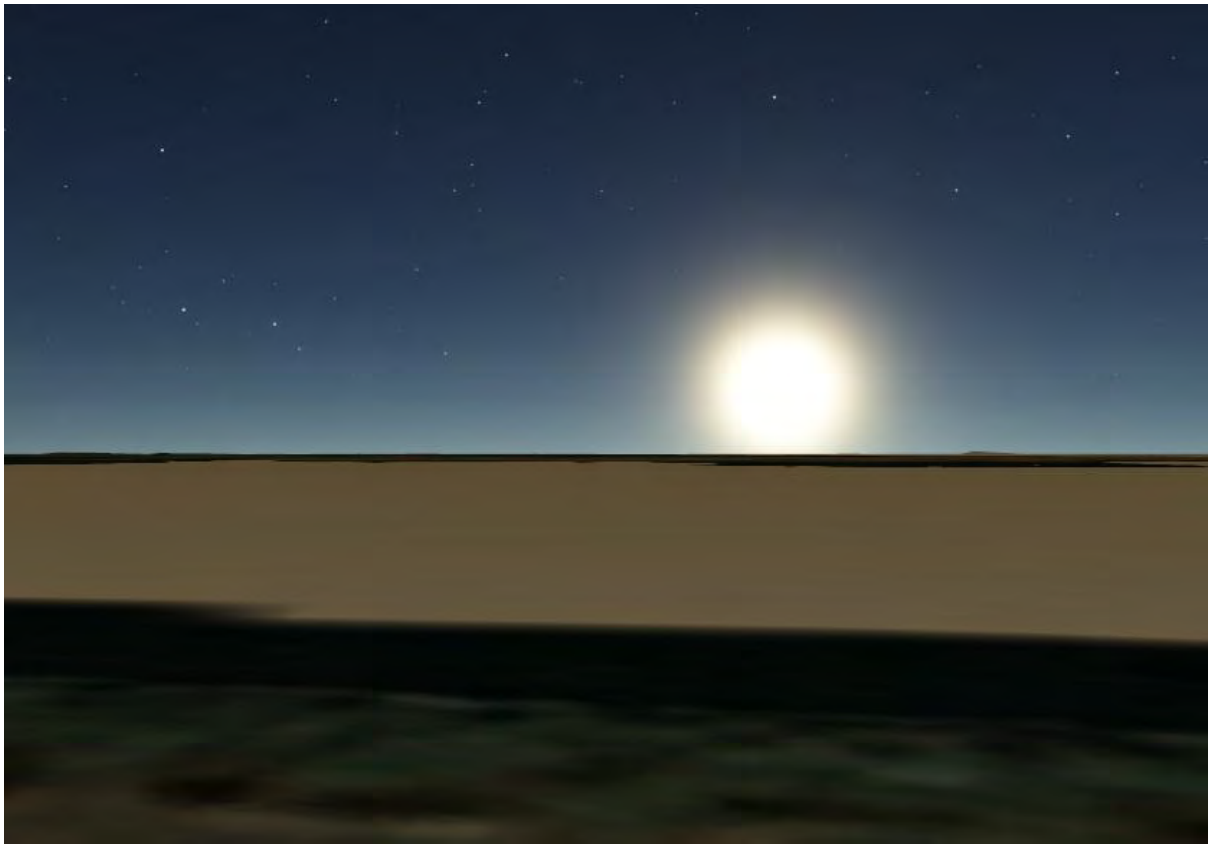


July 1st 18:00 UTC

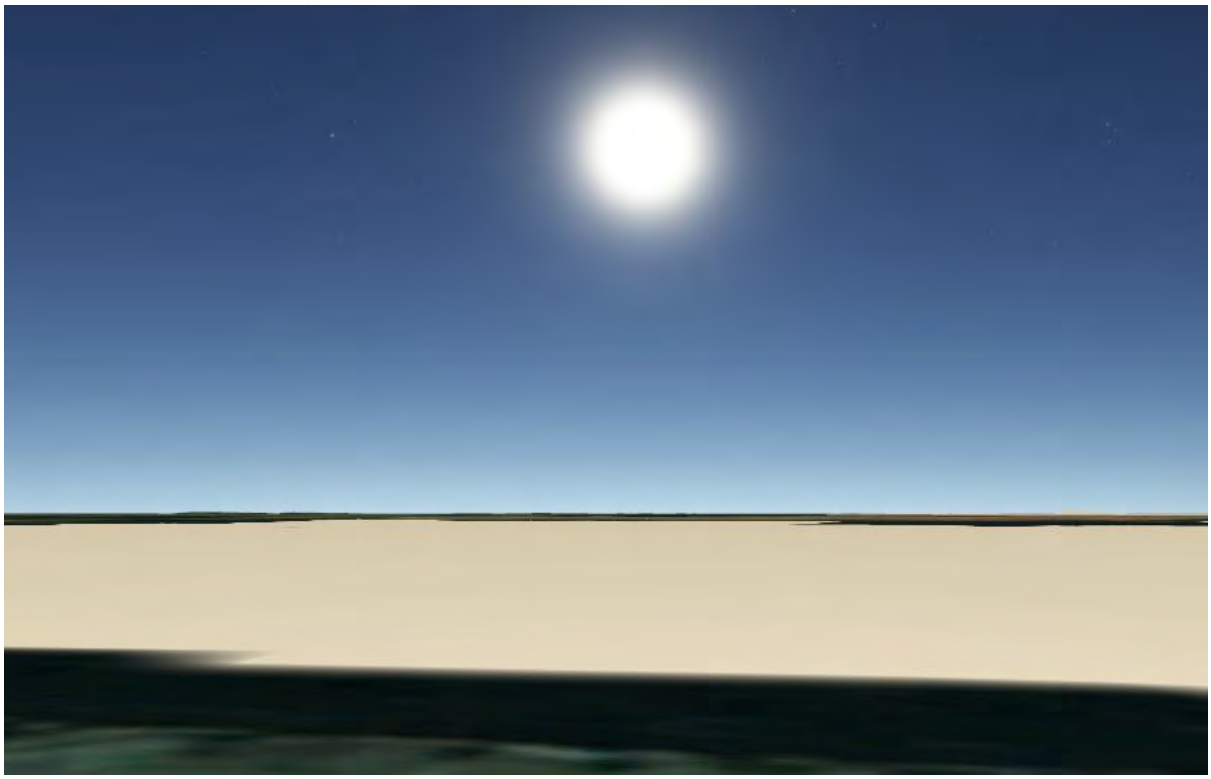


Looking East

April 1st 06:00 UTC



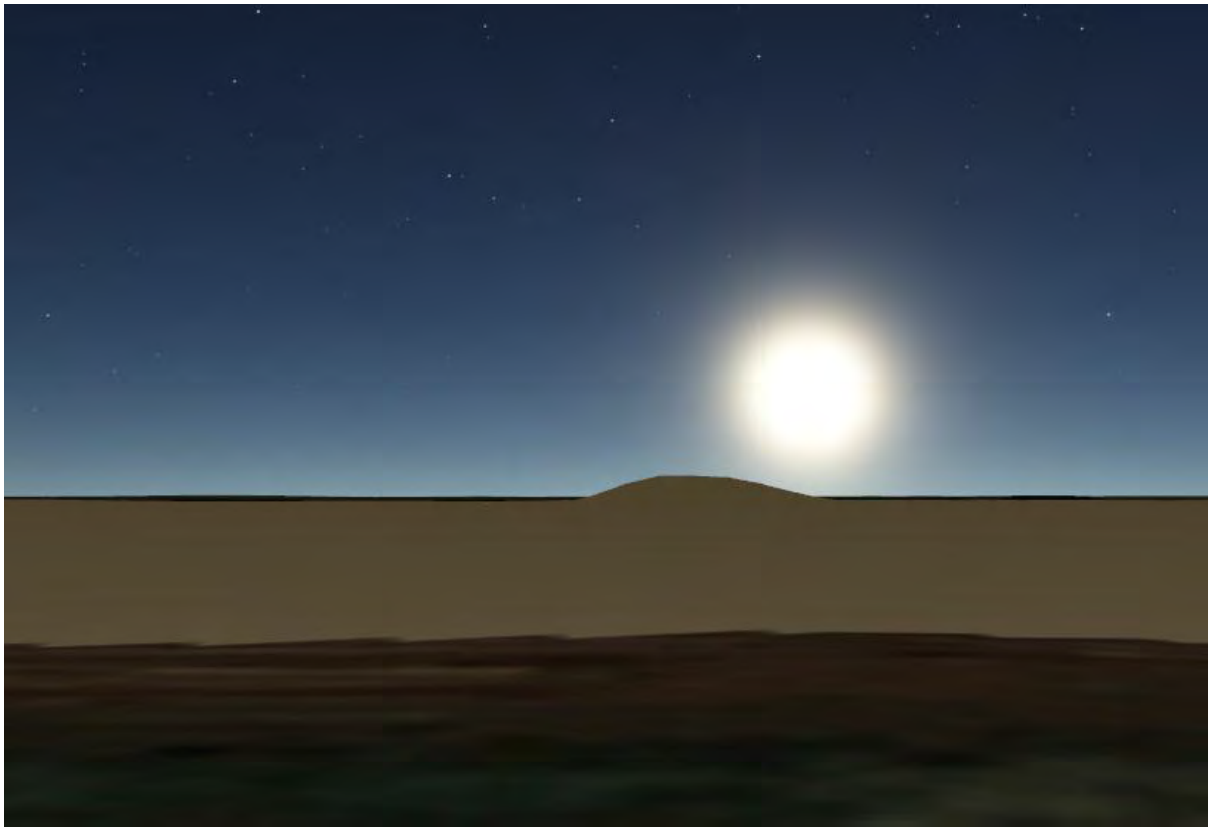
July 1st 06:00 UTC



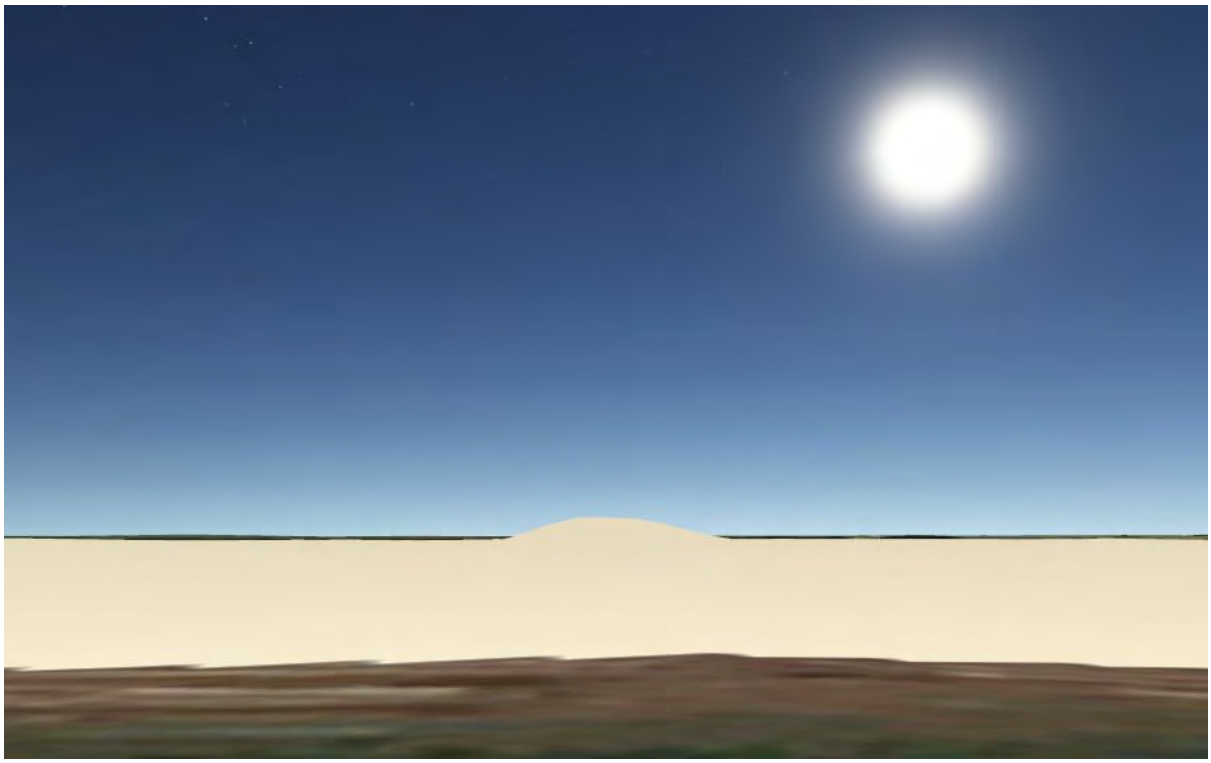
Receptor 32

Looking West

April 1st 18:00 UTC

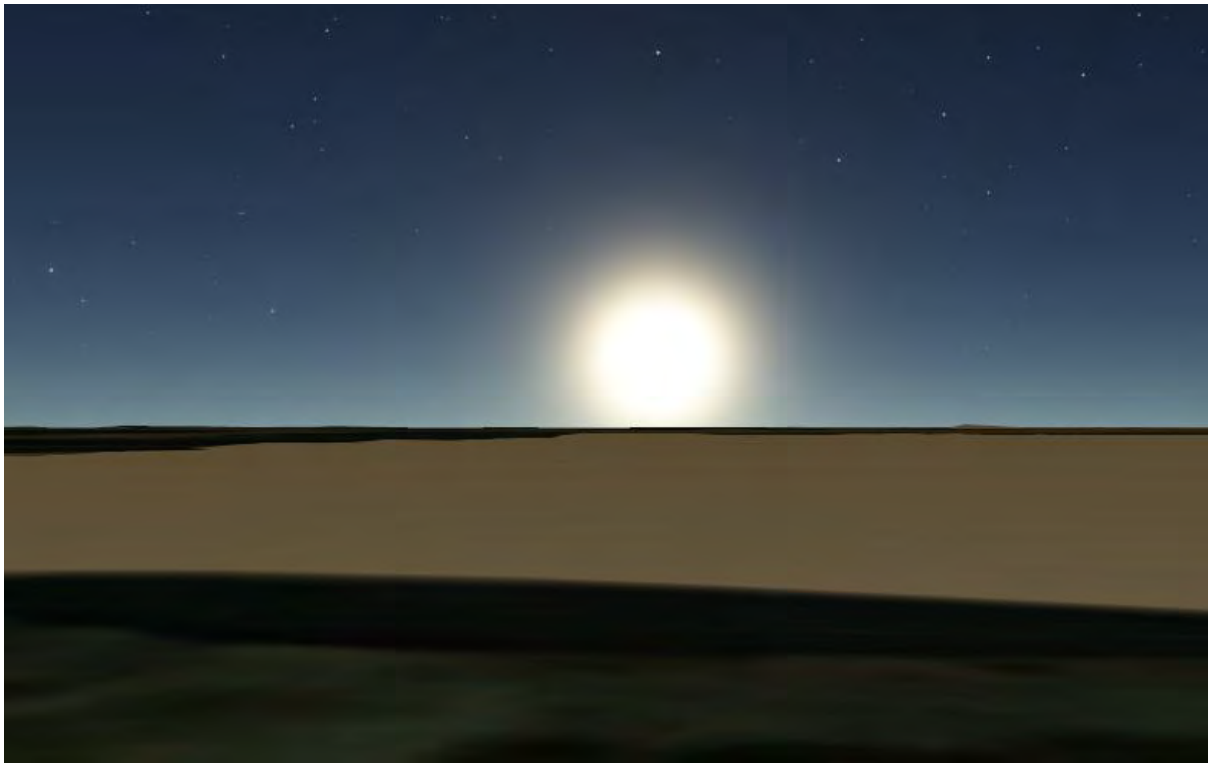


July 1st 18:00 UTC

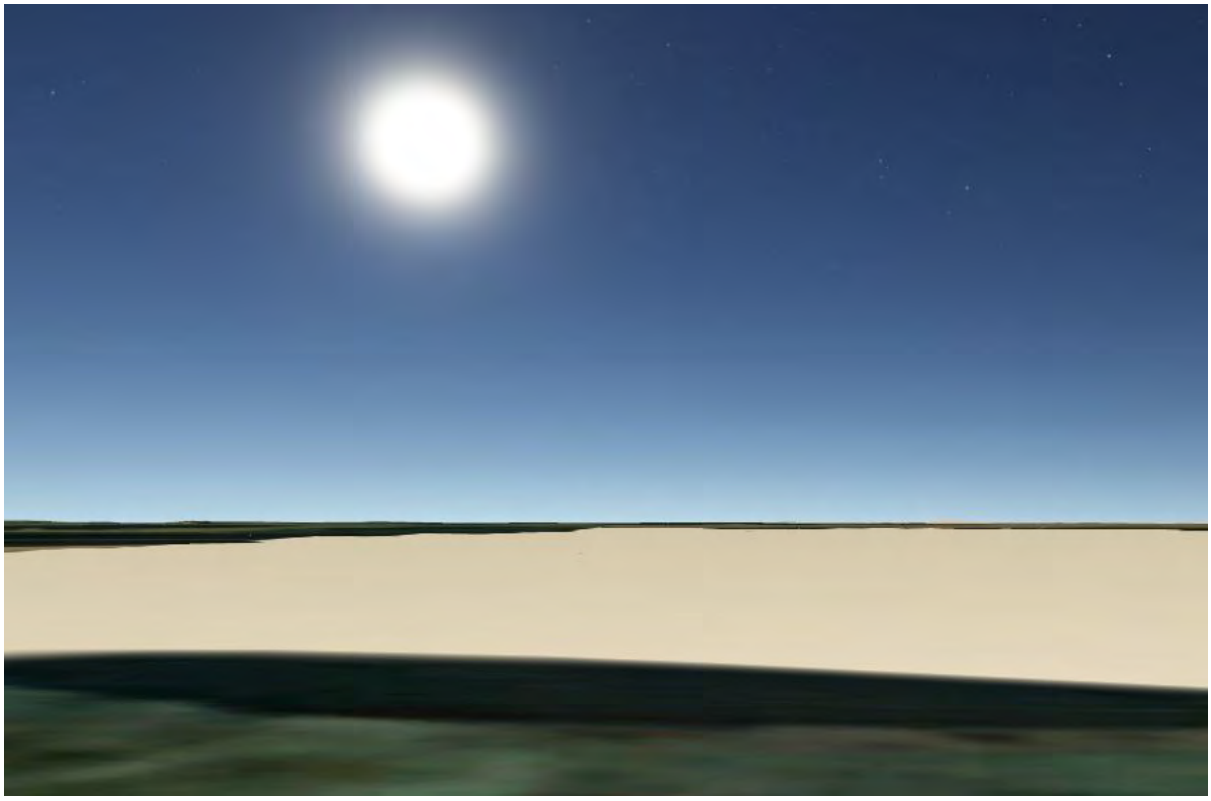


Looking East

April 1st 06:00 UTC



July 1st 06:00 UTC



Receptor 33

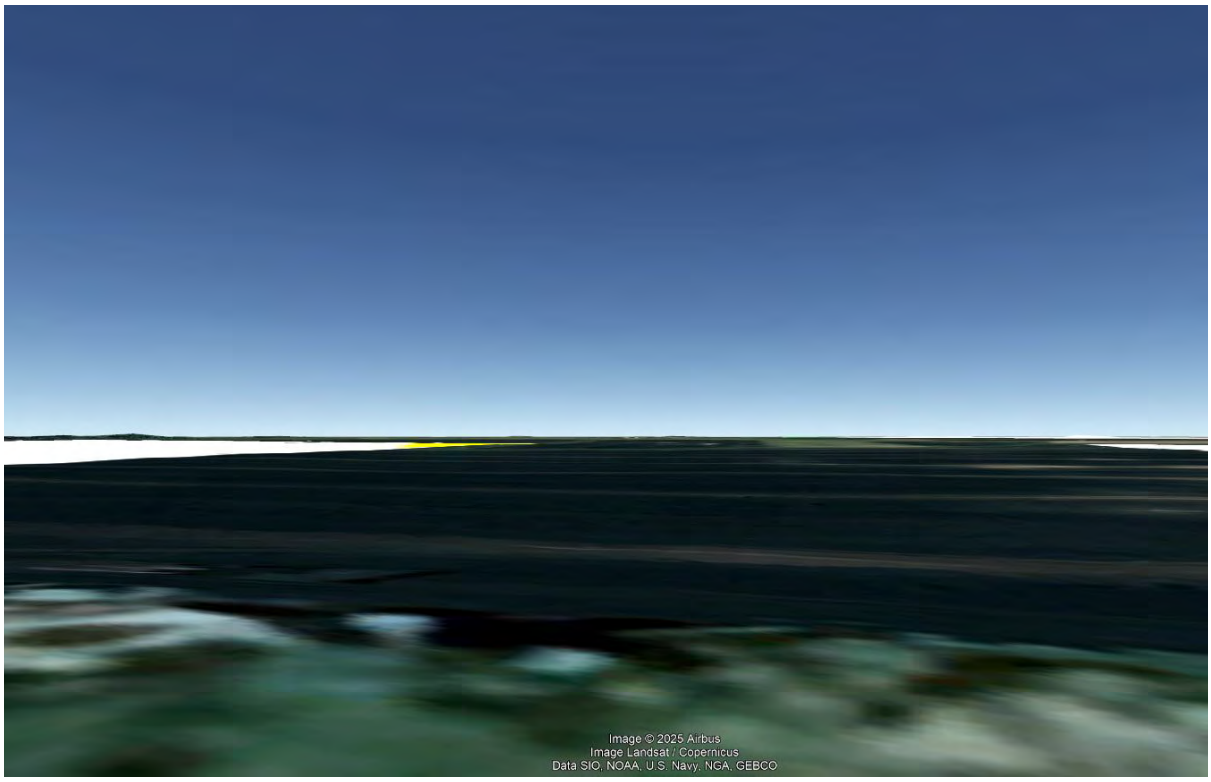

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Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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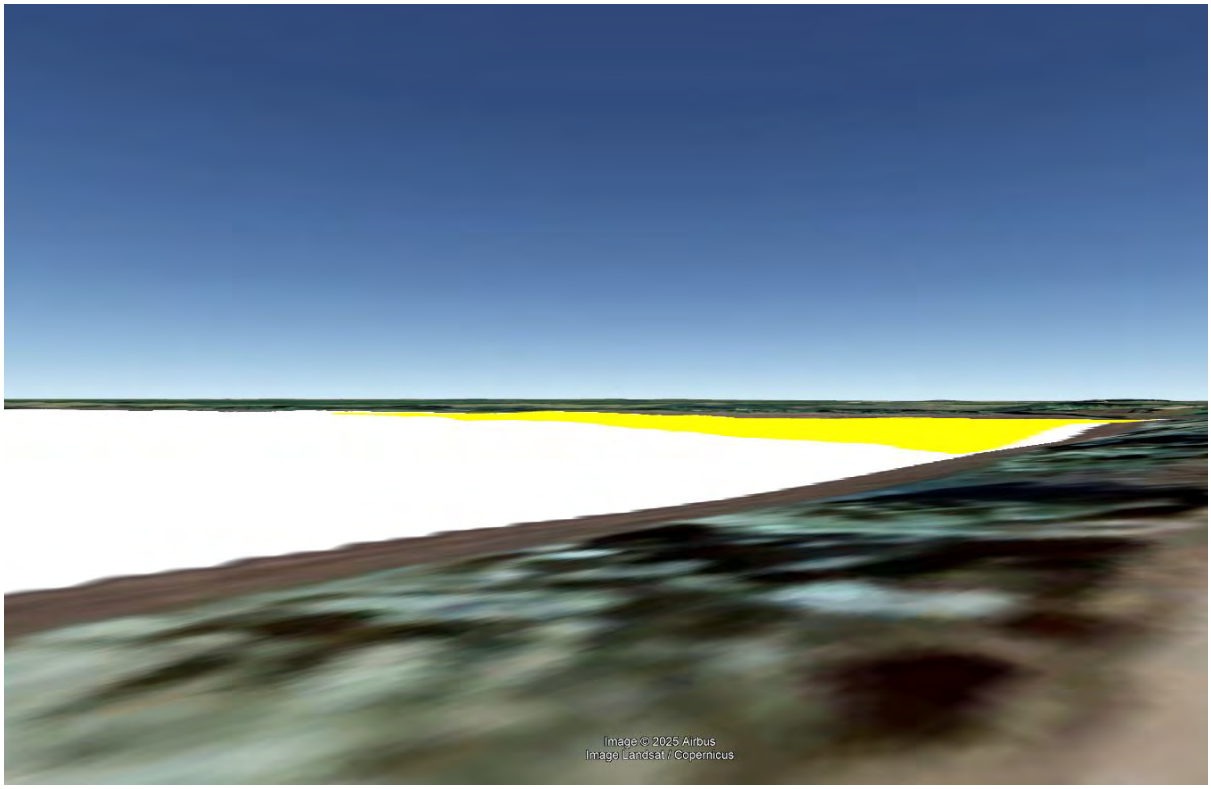
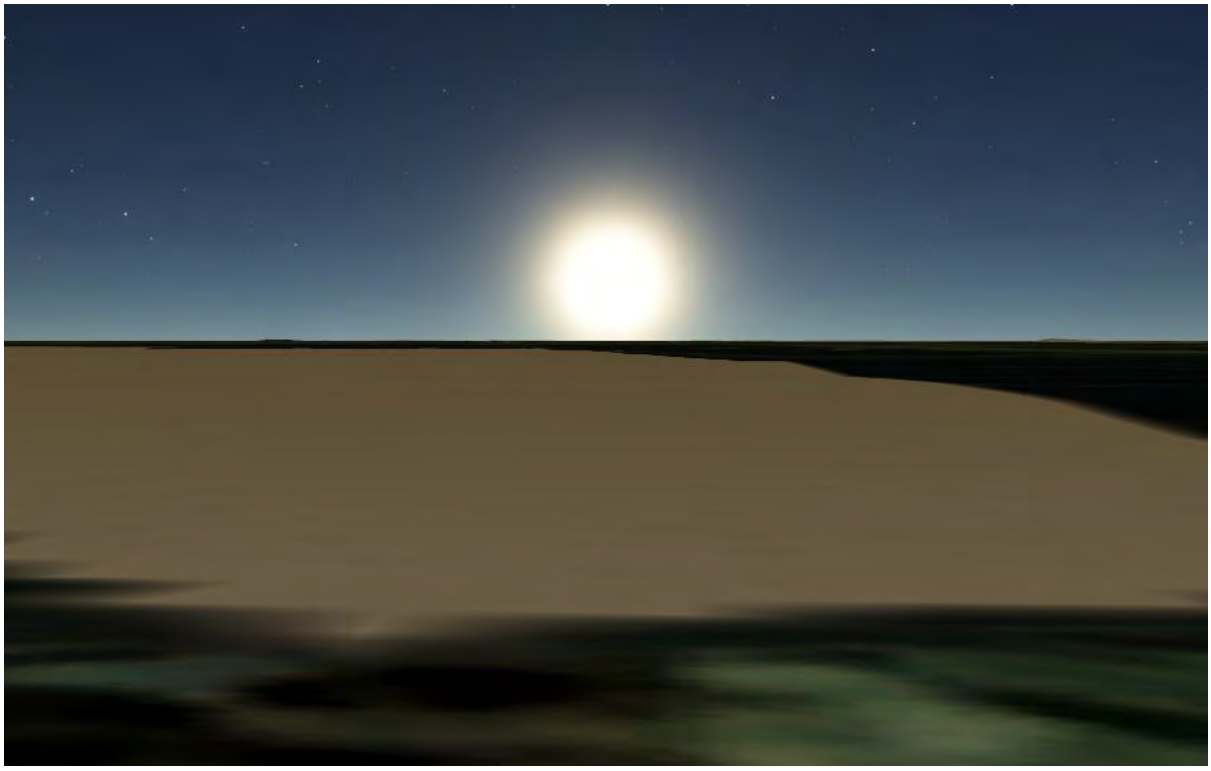
Receptor 34

Looking West

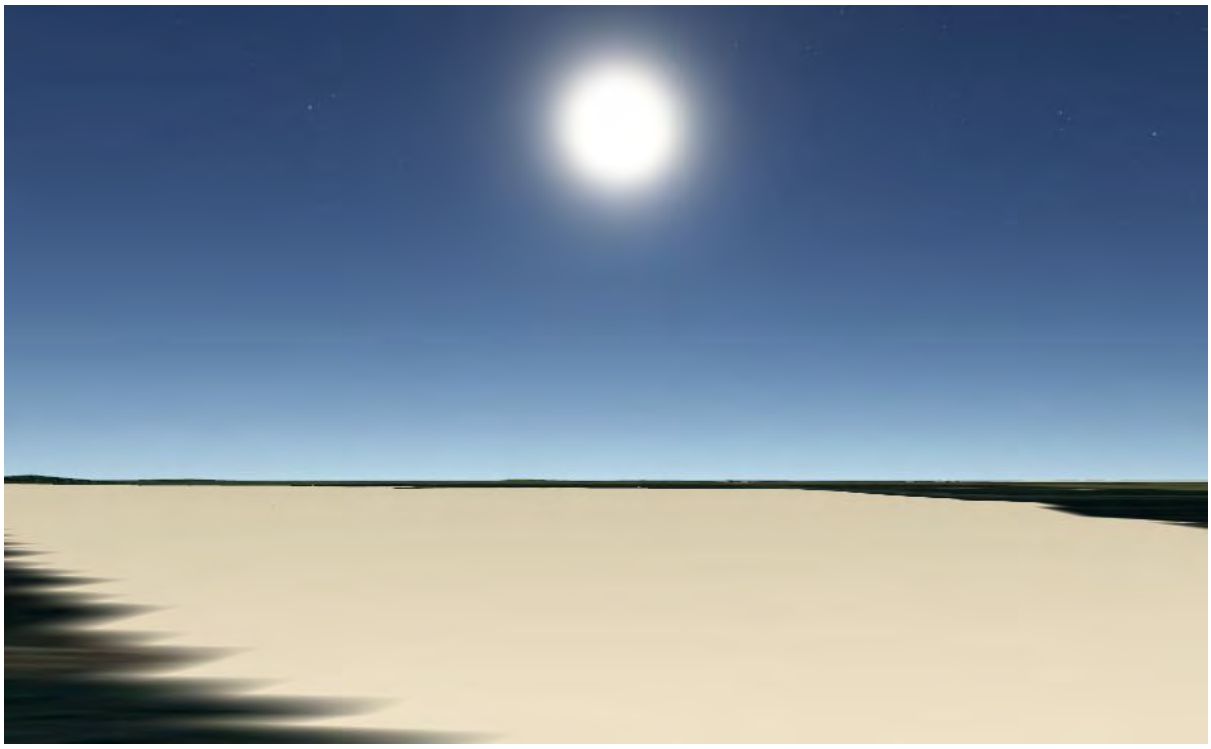


Looking East

April 1st 06:00 UTC



July 1st 06:00 UTC



Receptor 35

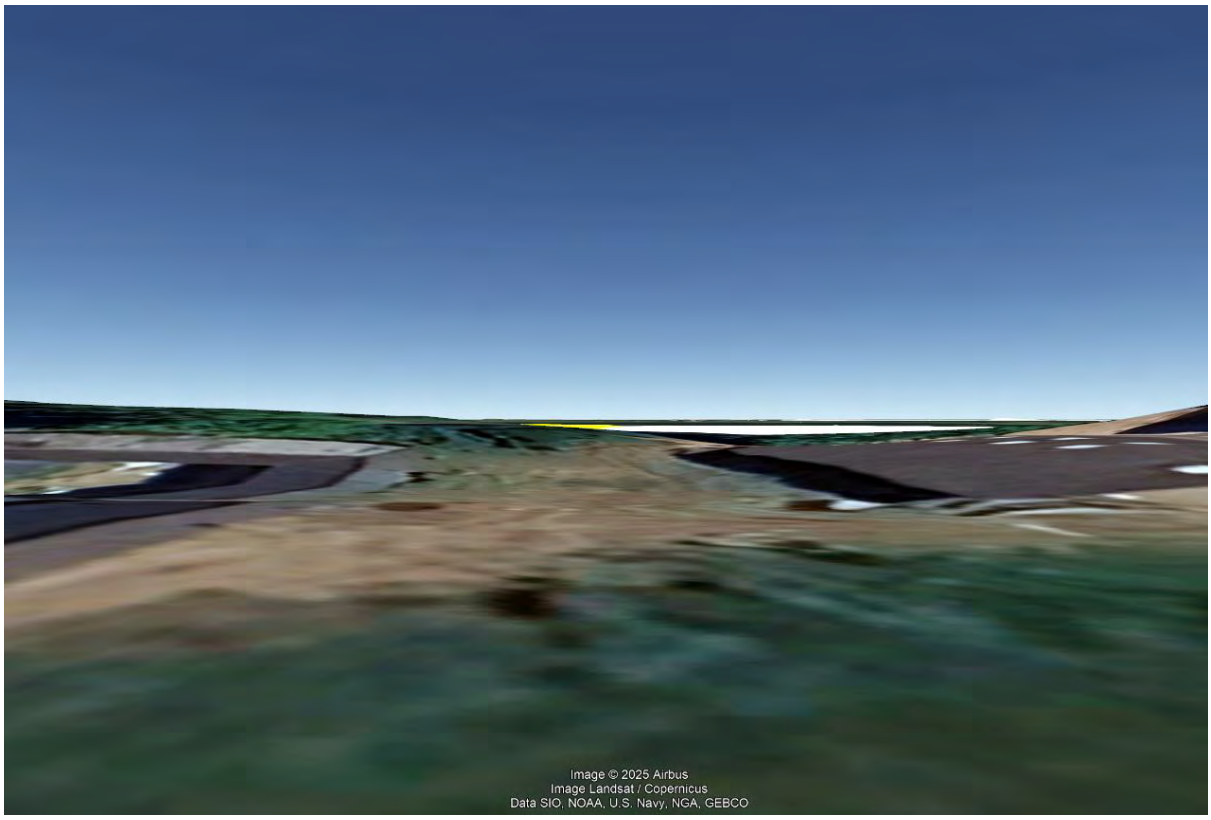


Image © 2025 Airbus
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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Receptor 36

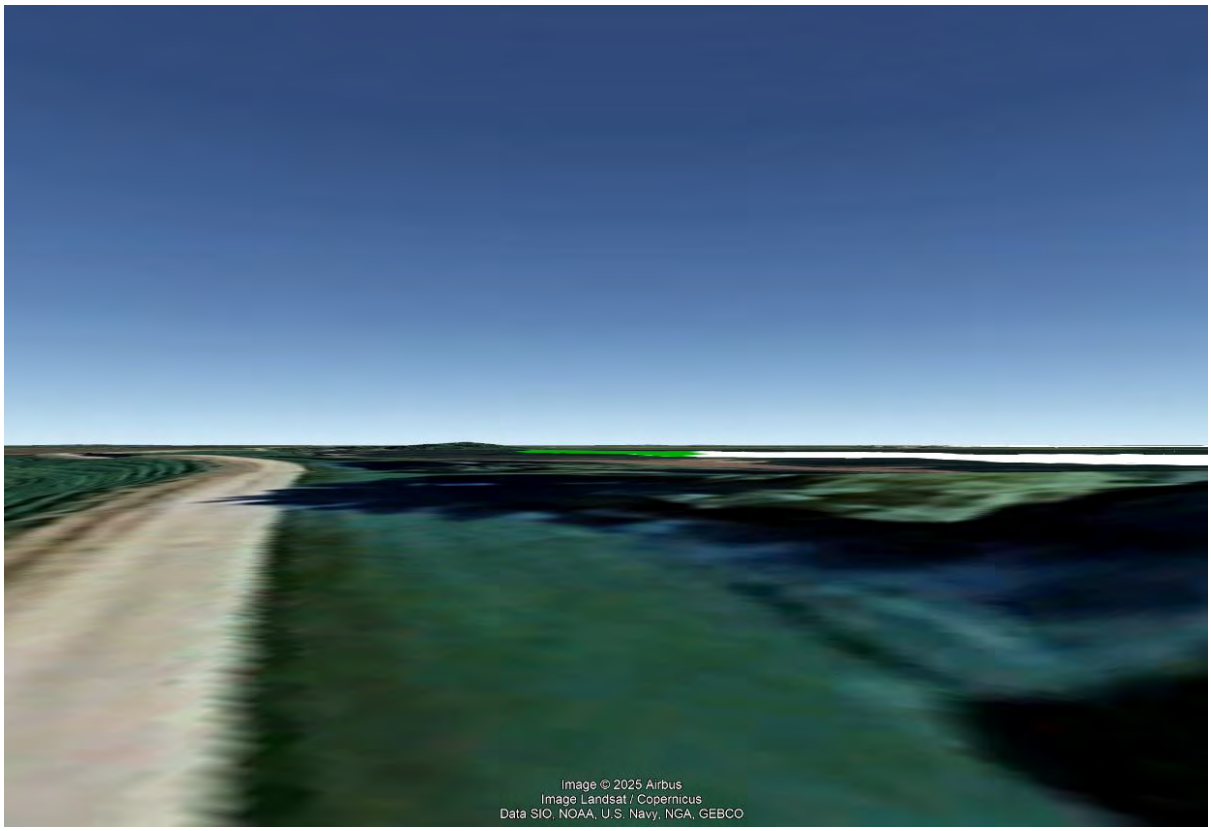
Image © 2025 Airbus
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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Receptor 39

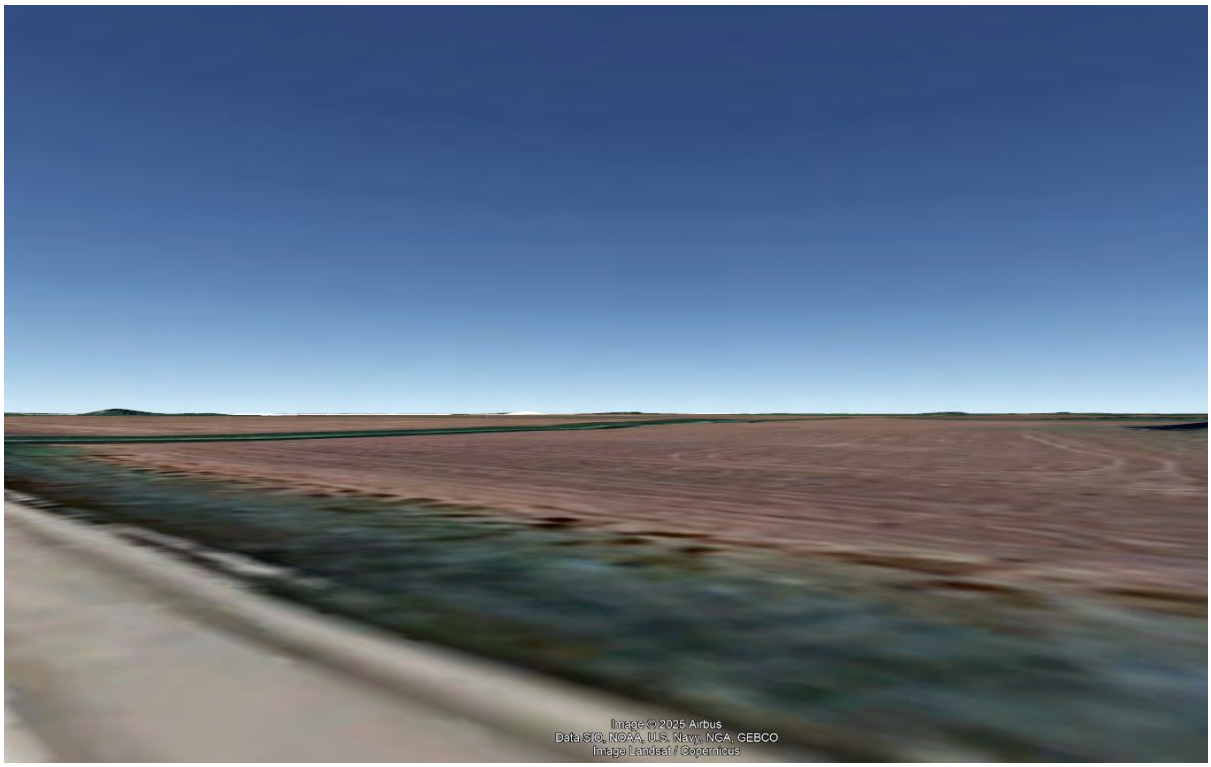
Image © 2025 Airbus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus

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Receptor 40

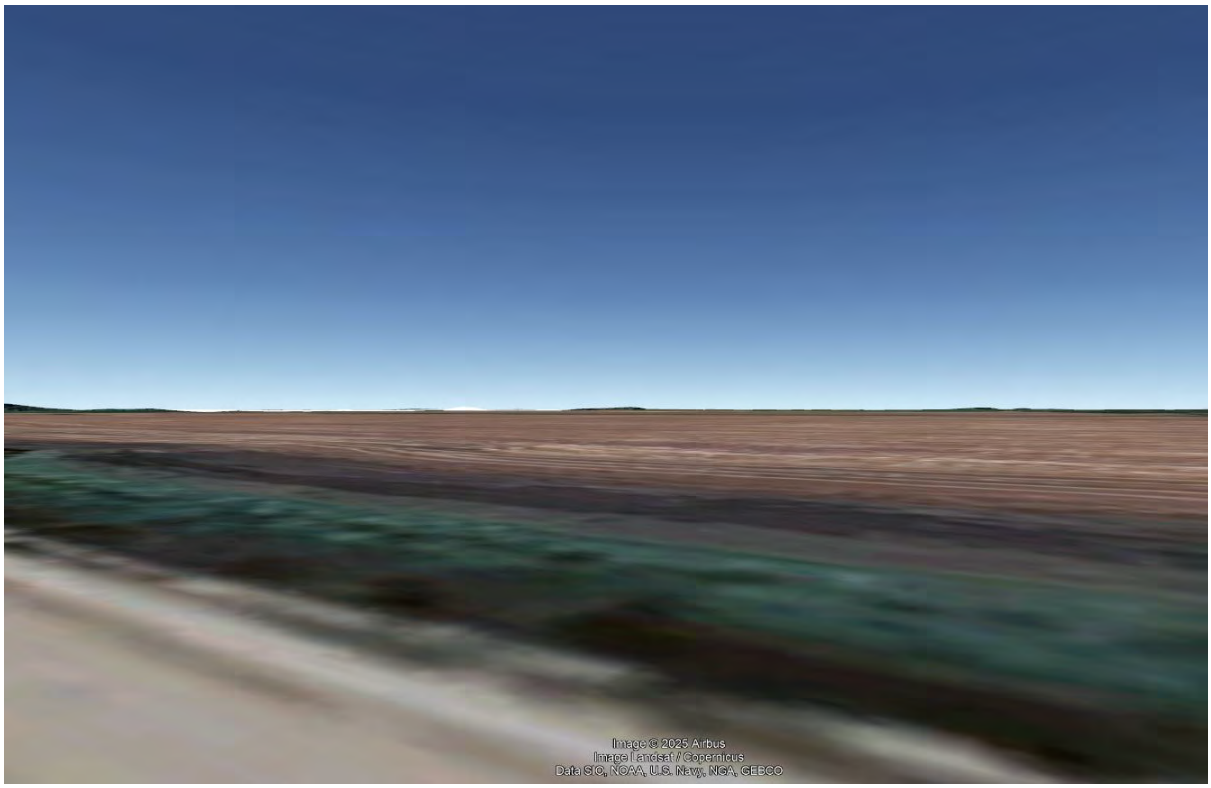
Image © 2025 Airbus
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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Receptor 41

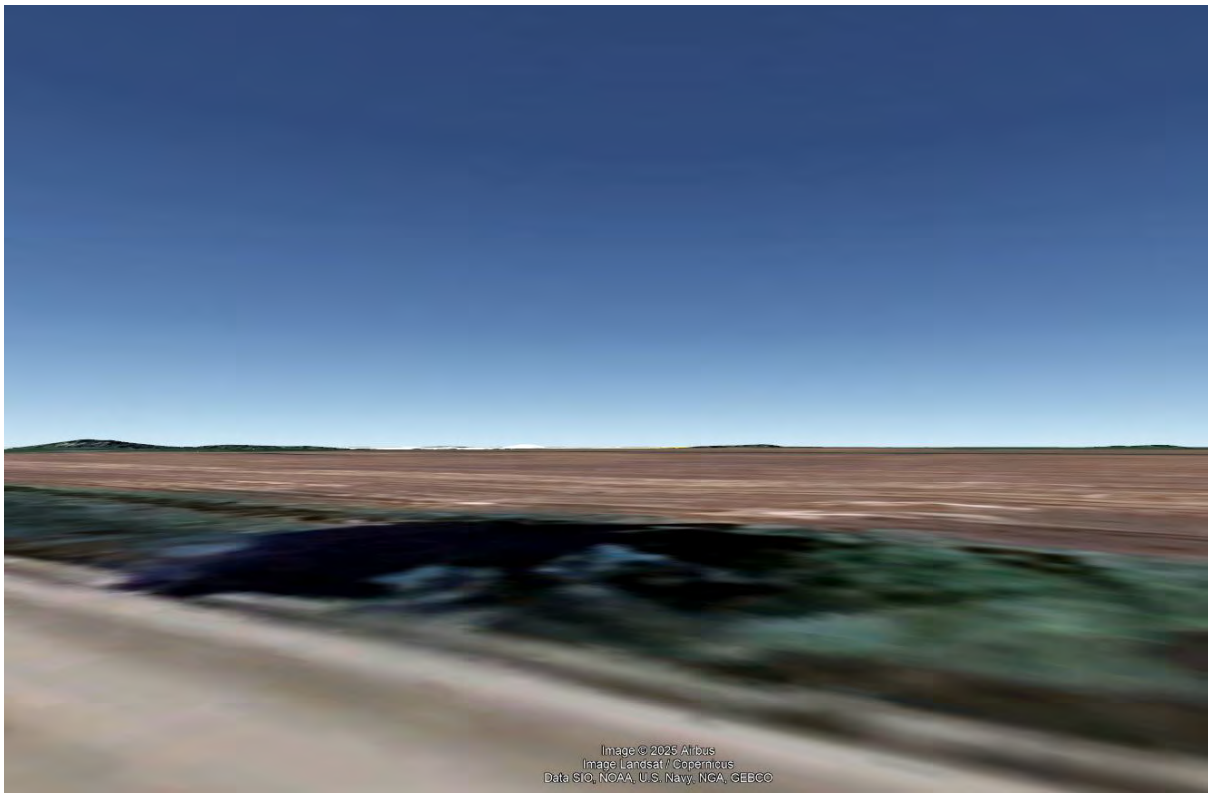
Image © 2025 Airbus
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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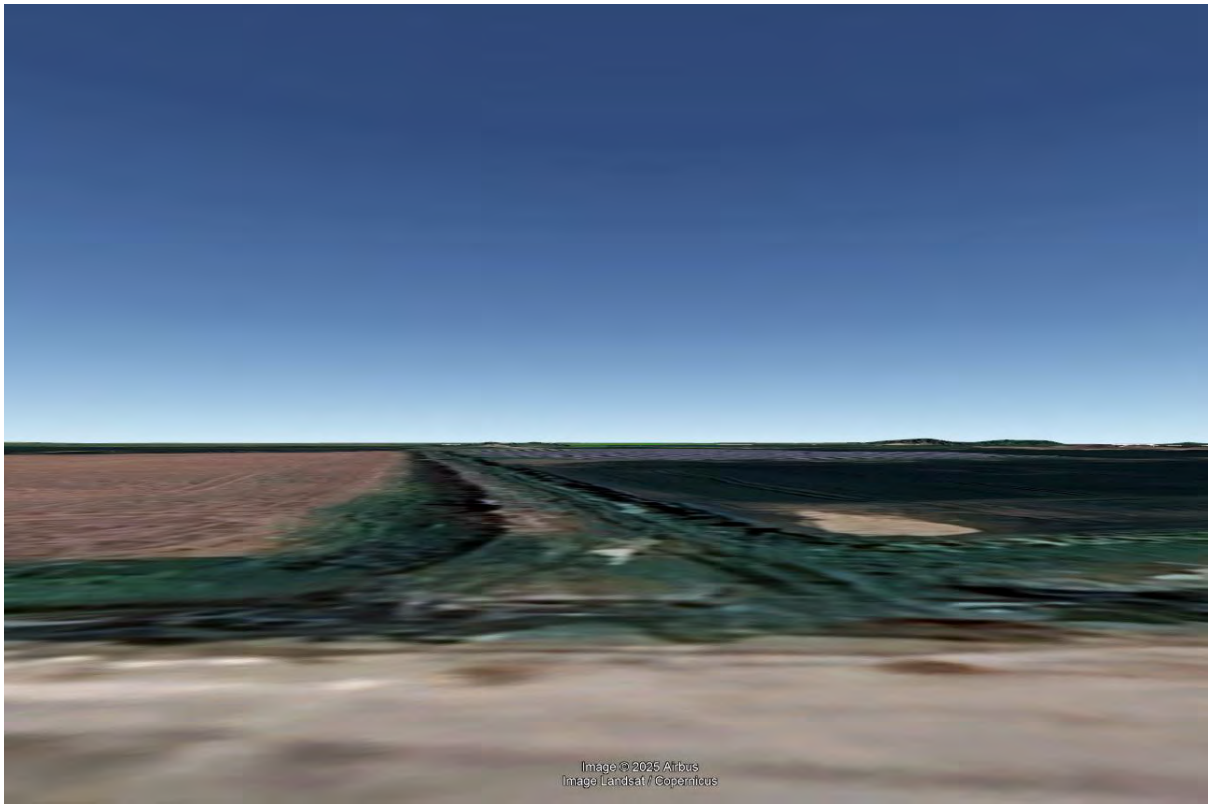
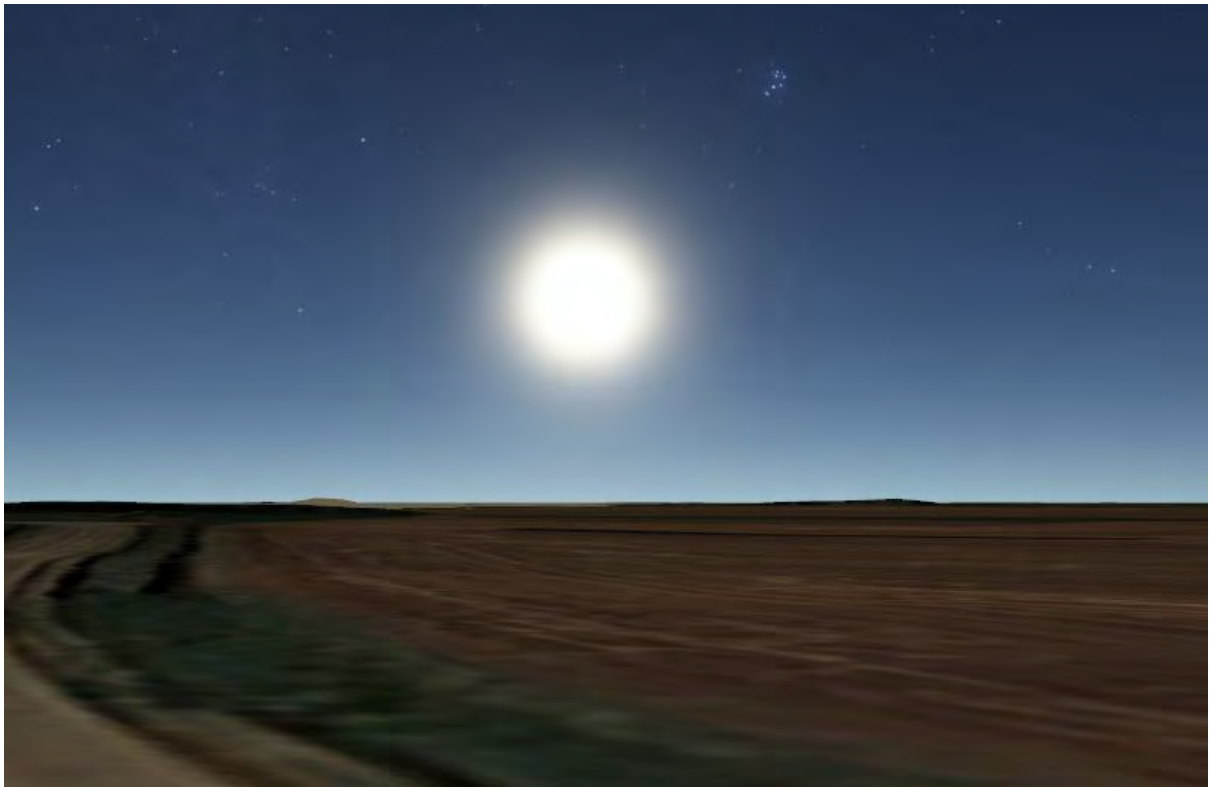
Receptor 42

Looking West

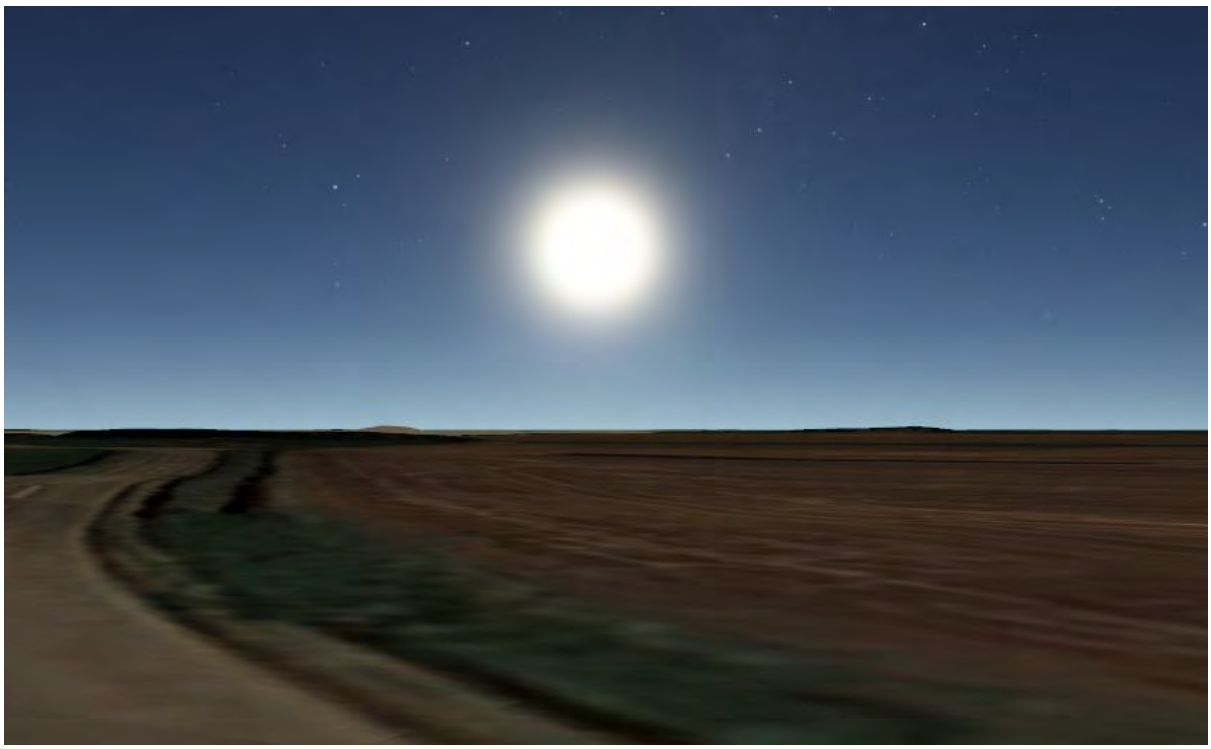


Looking East

June 1st 05:00 UTC

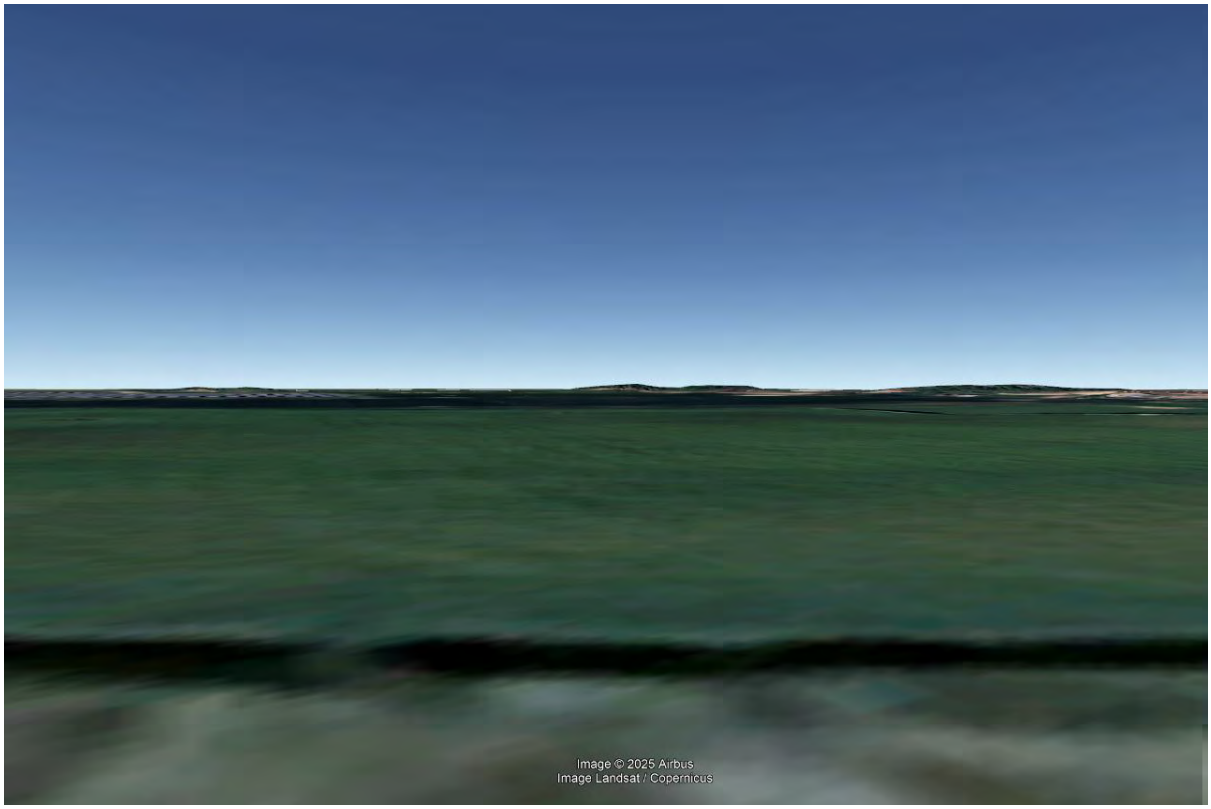


July 1st 05:00 UTC

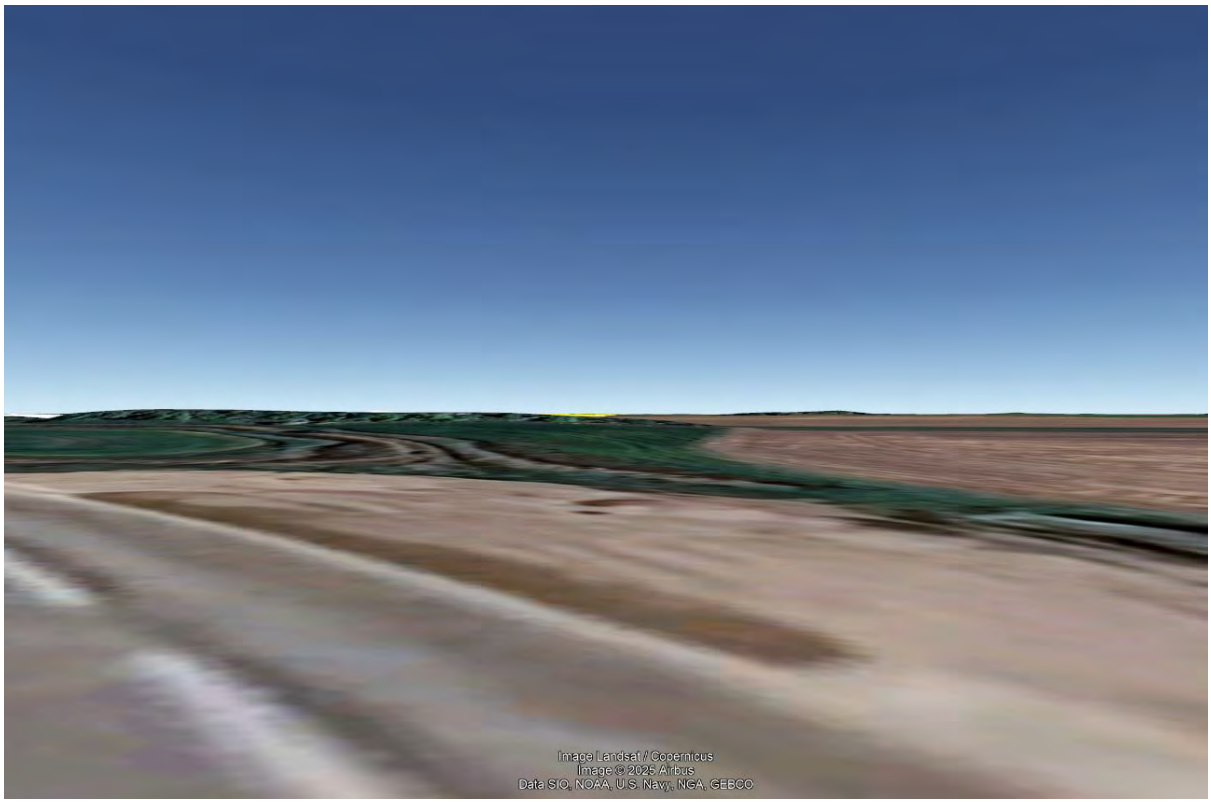


Receptor 43

Looking West

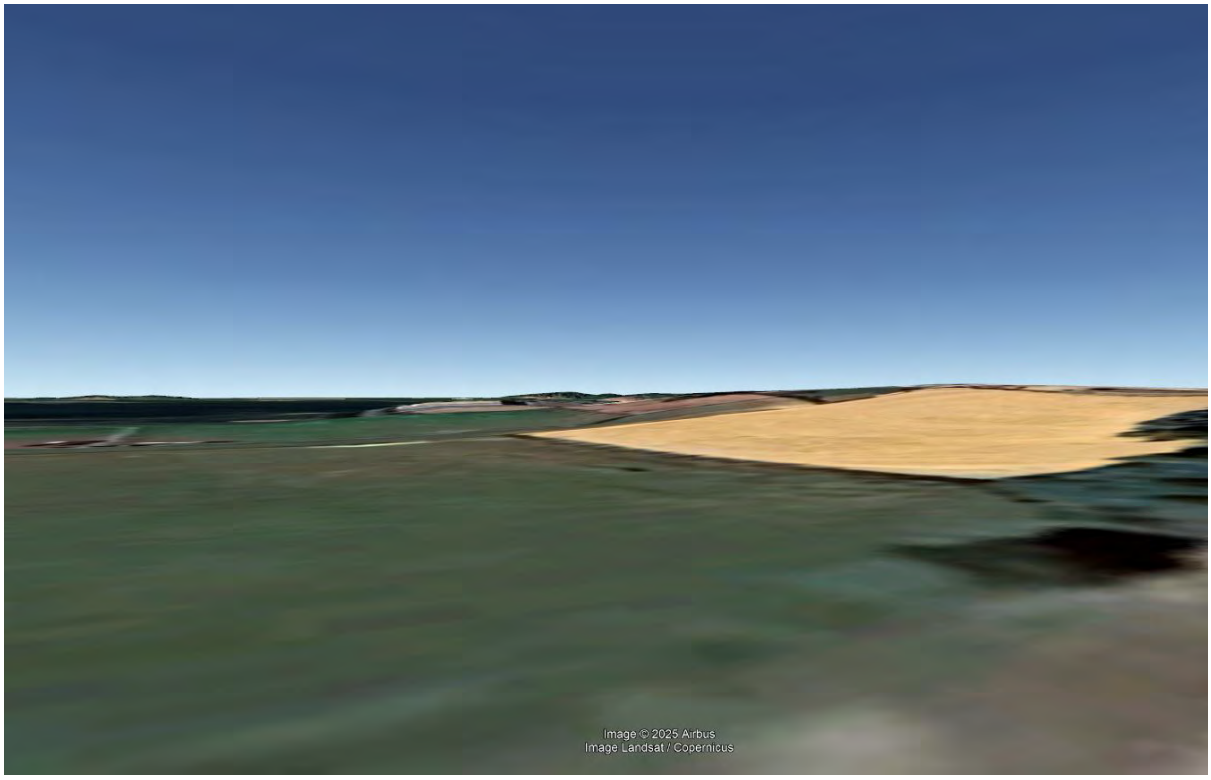


Looking East

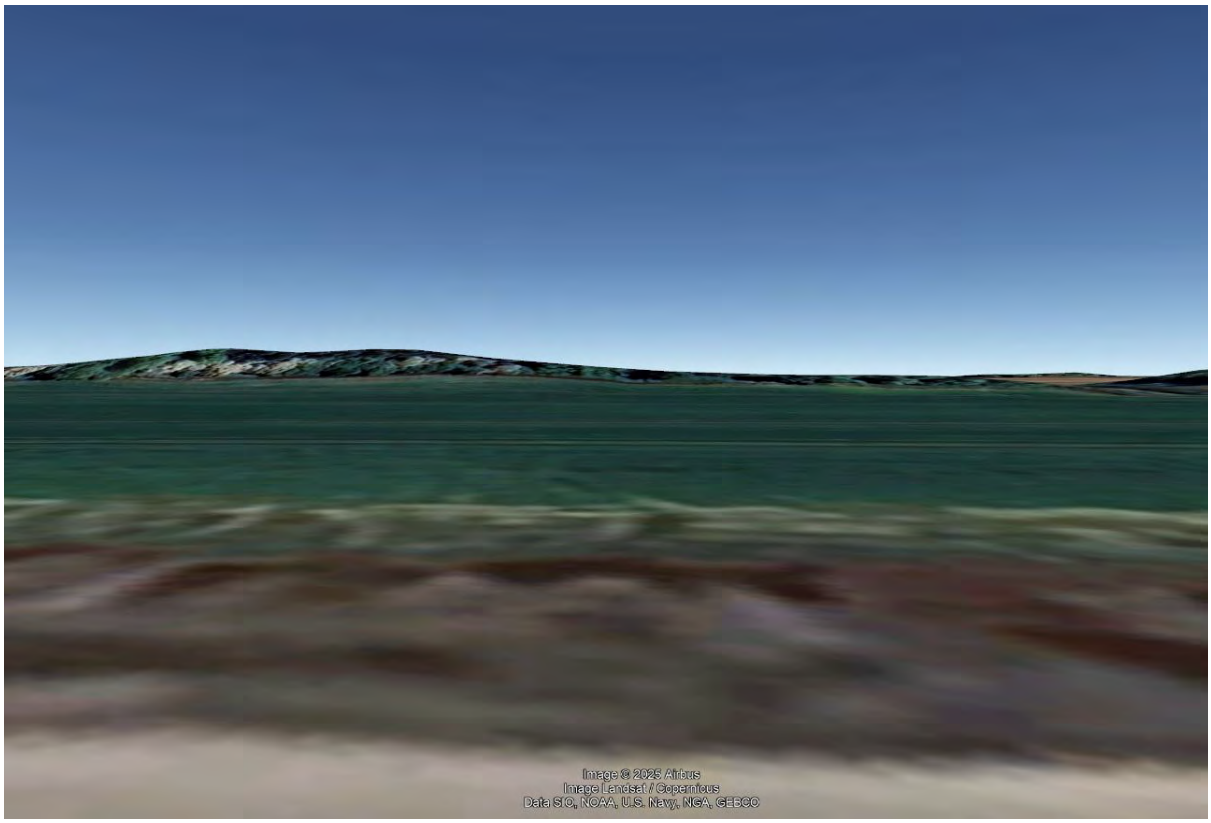


Receptor 44

Looking West

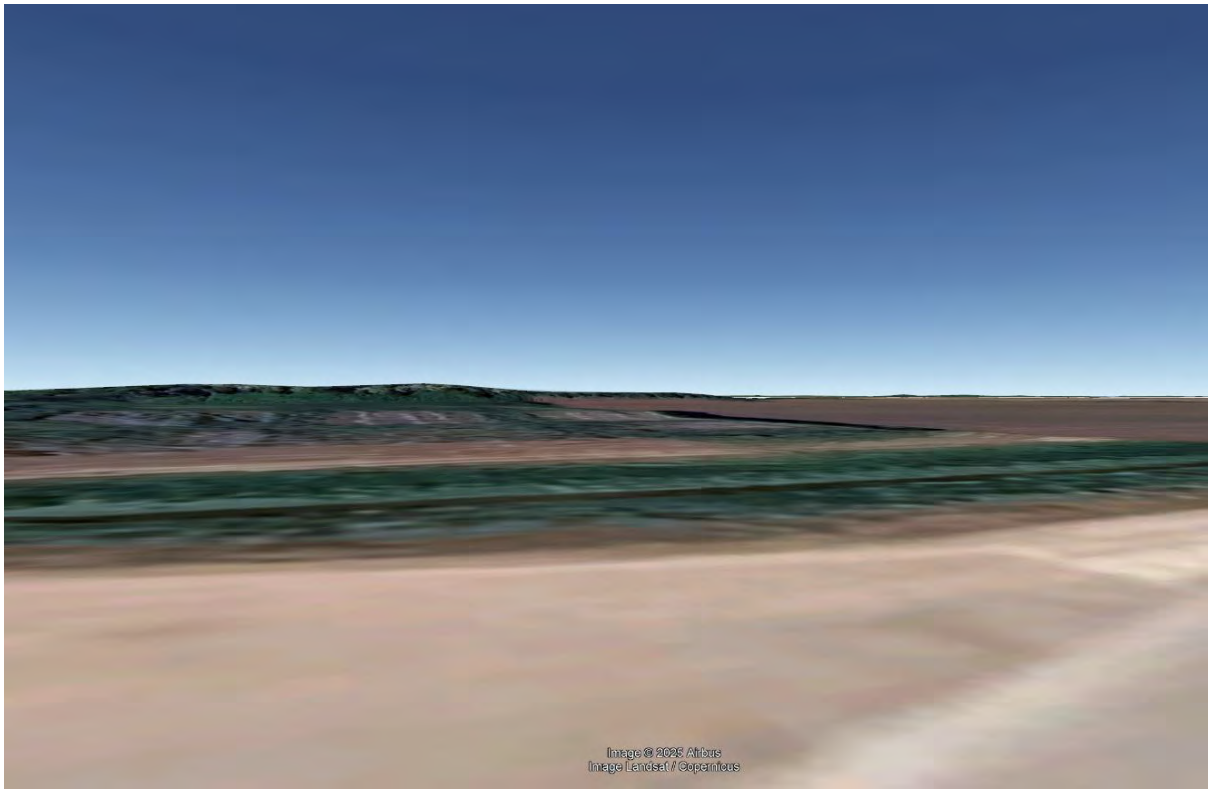


Looking East



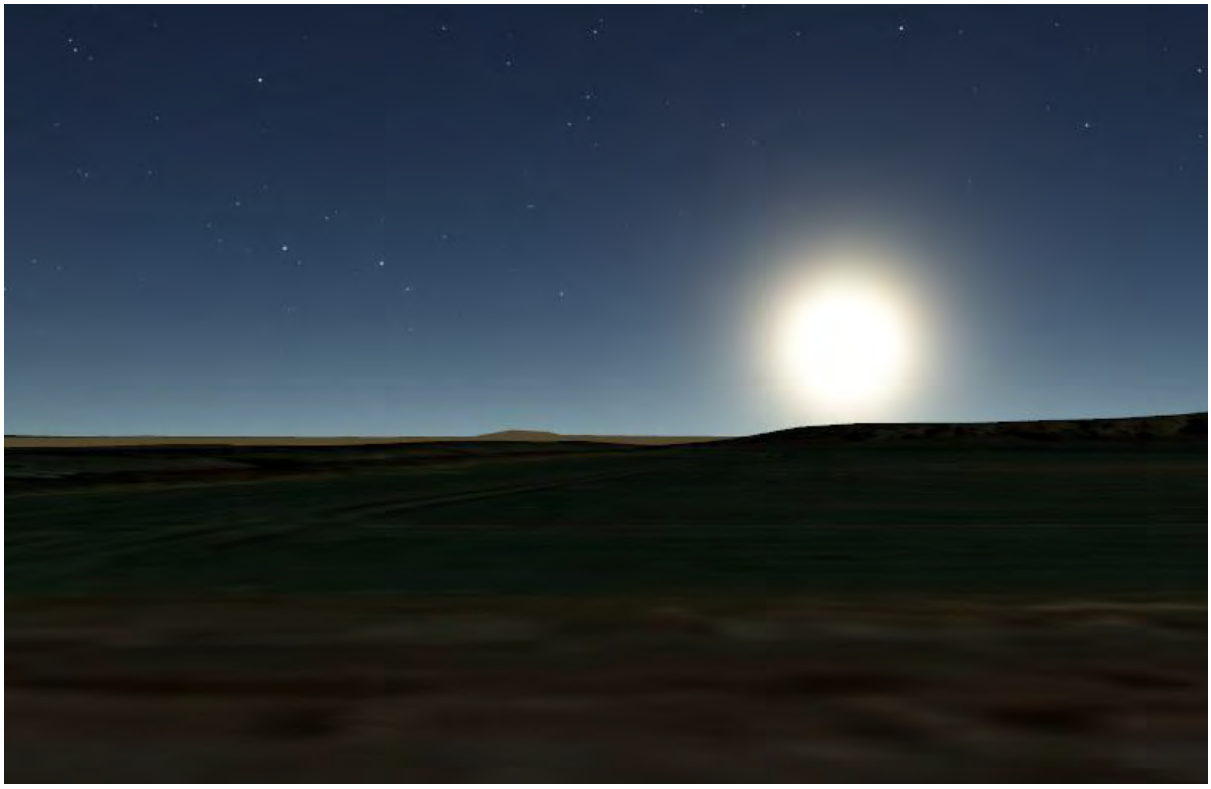
Receptor 45

Looking West

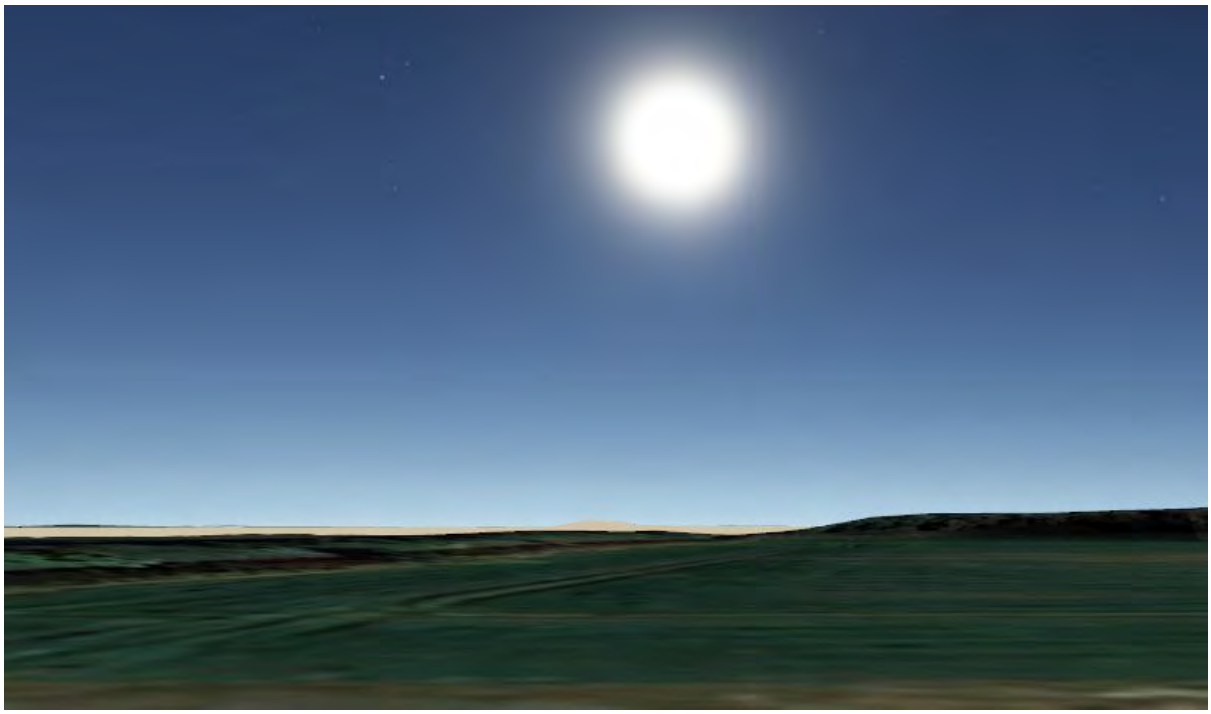


Looking East

April 1st 06:00 UTC

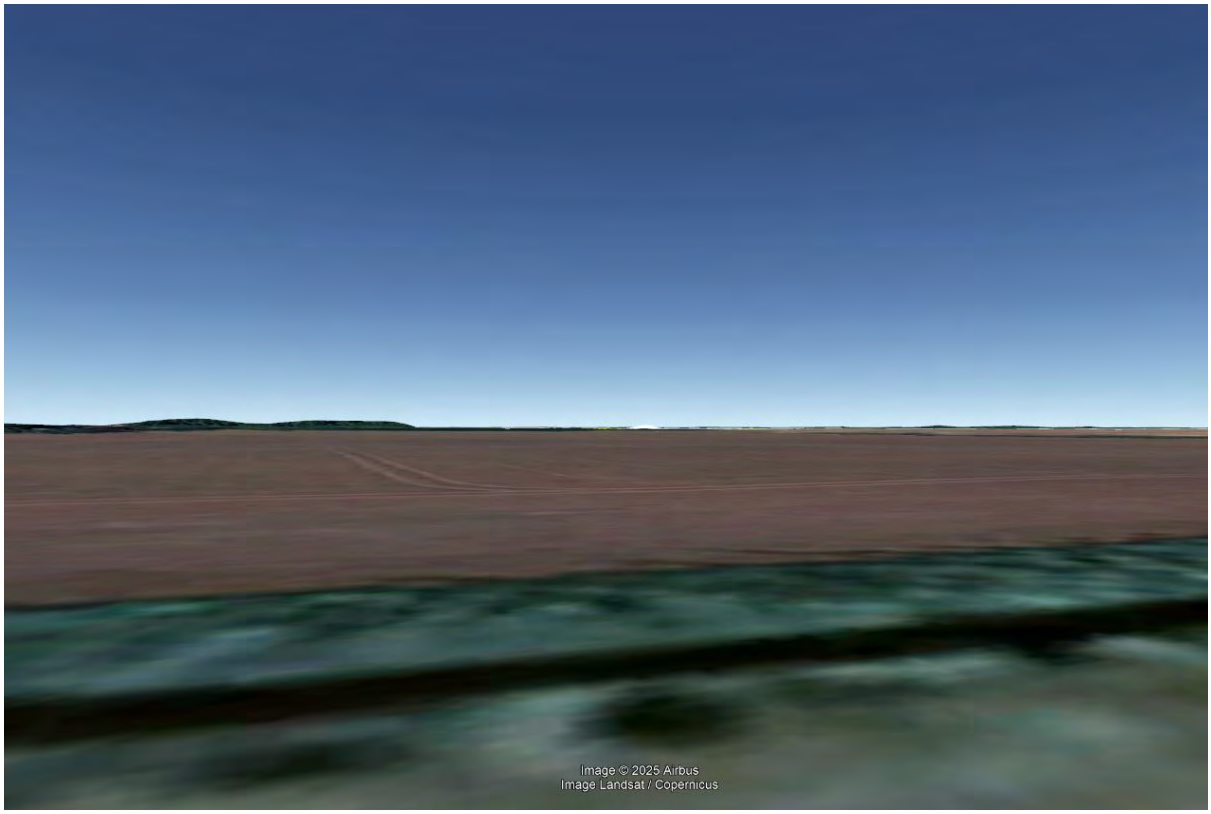


July 1st 06:00 UTC



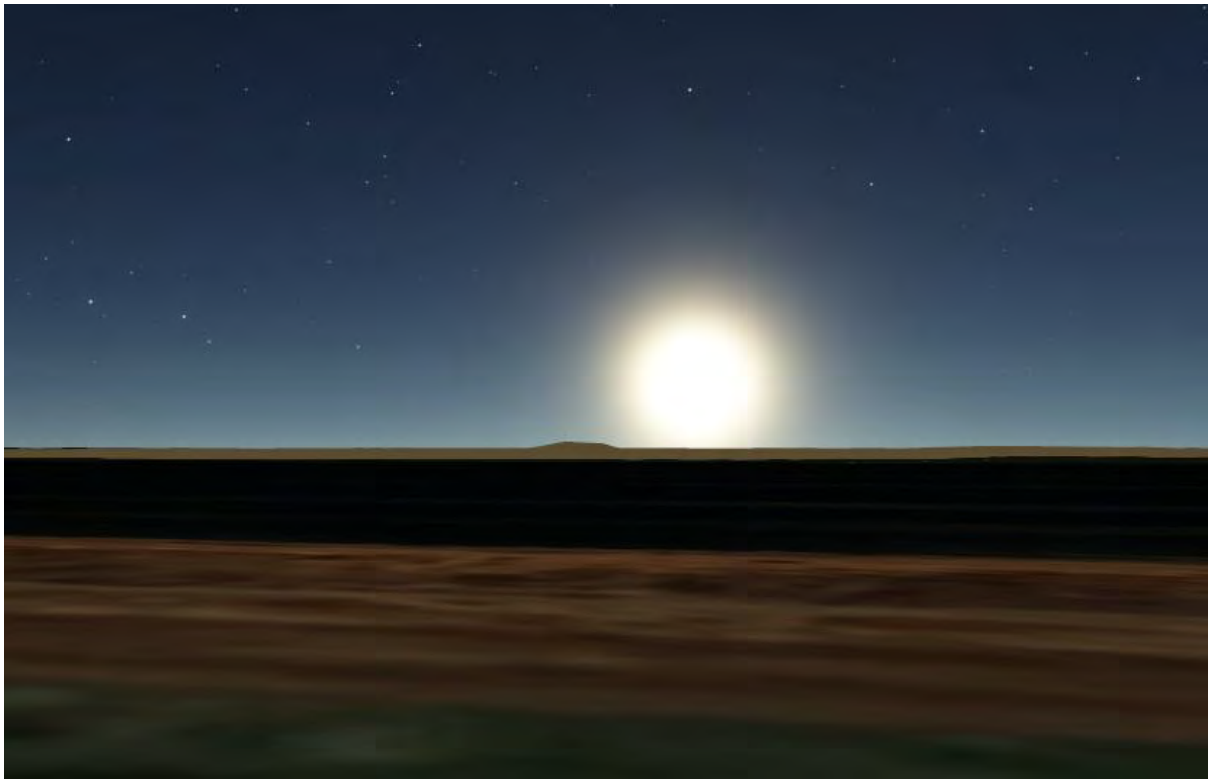
Receptor 46

Looking West

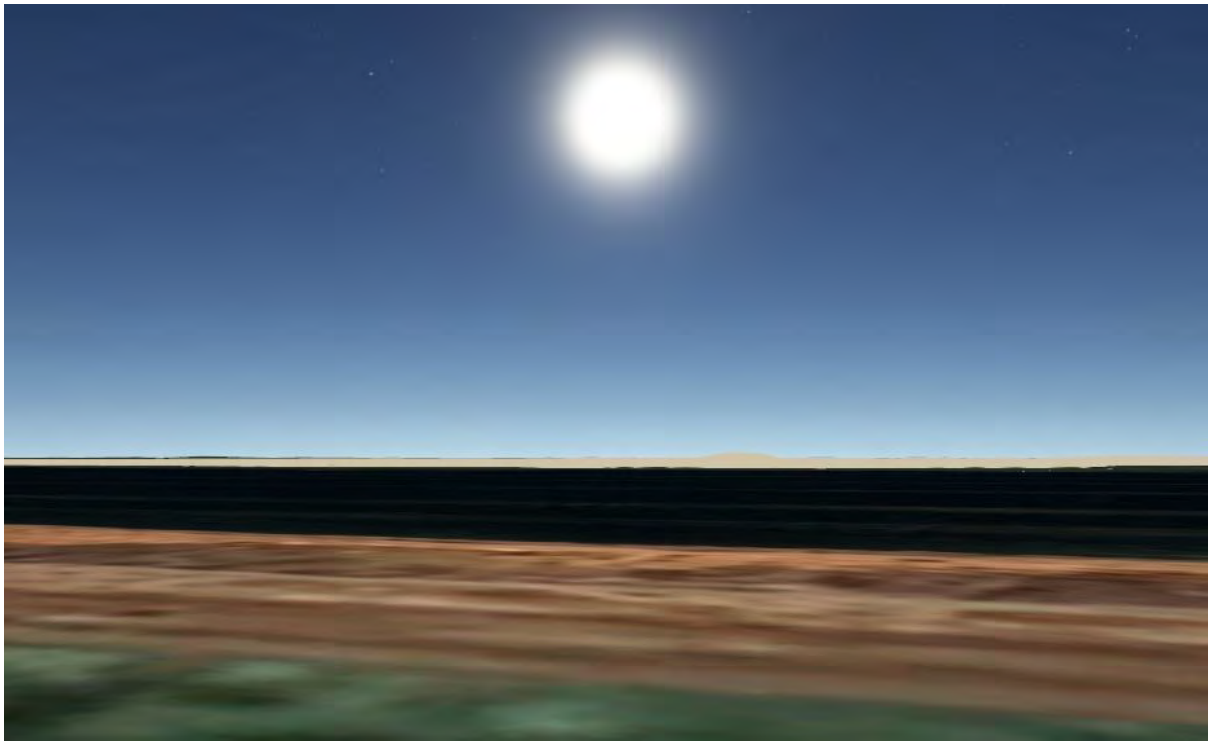


Looking East

April 1st 06:00 UTC

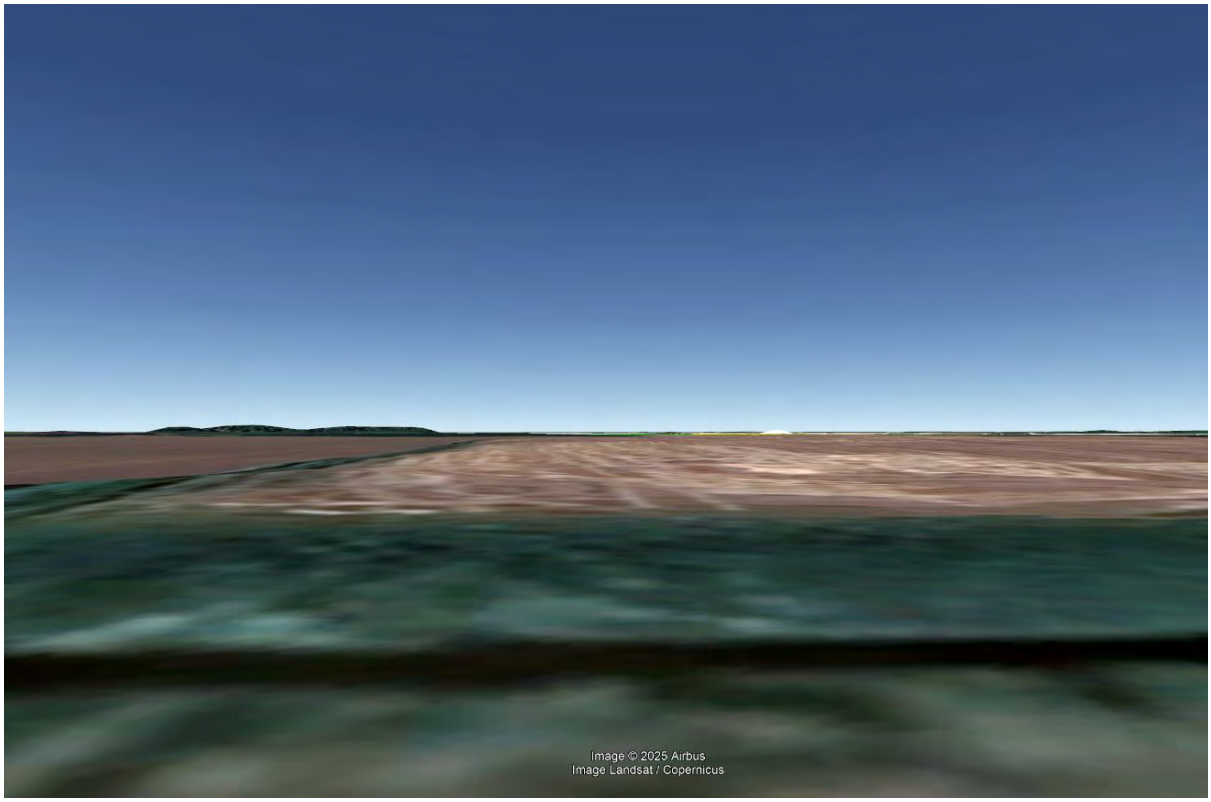


July 1st 06:00 UTC



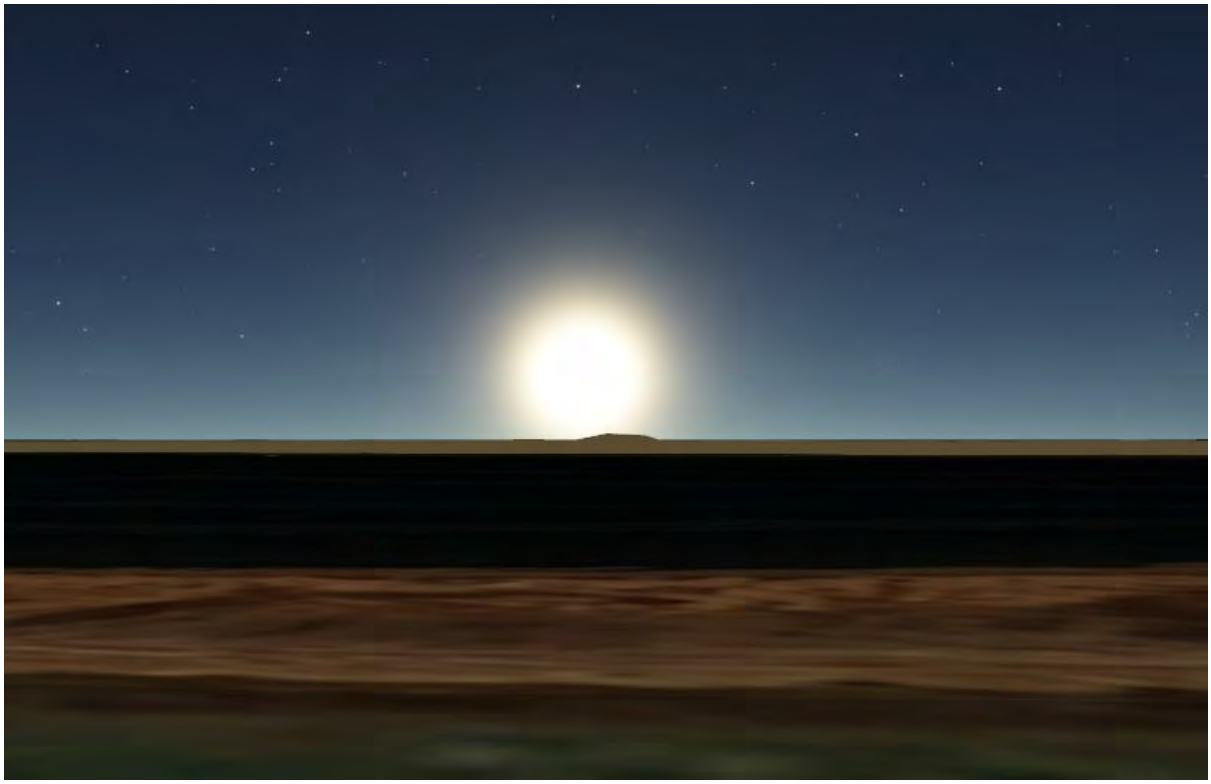
Receptor 47

Looking West

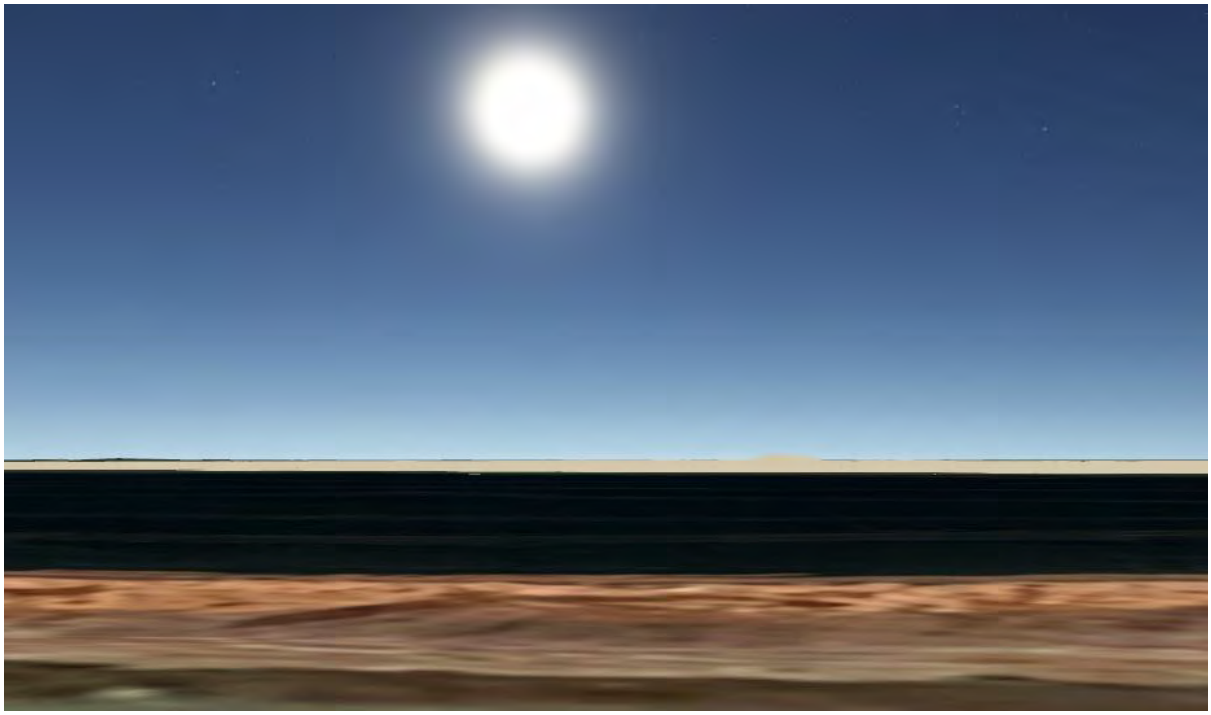


Looking East

April 1st 06:00 UTC

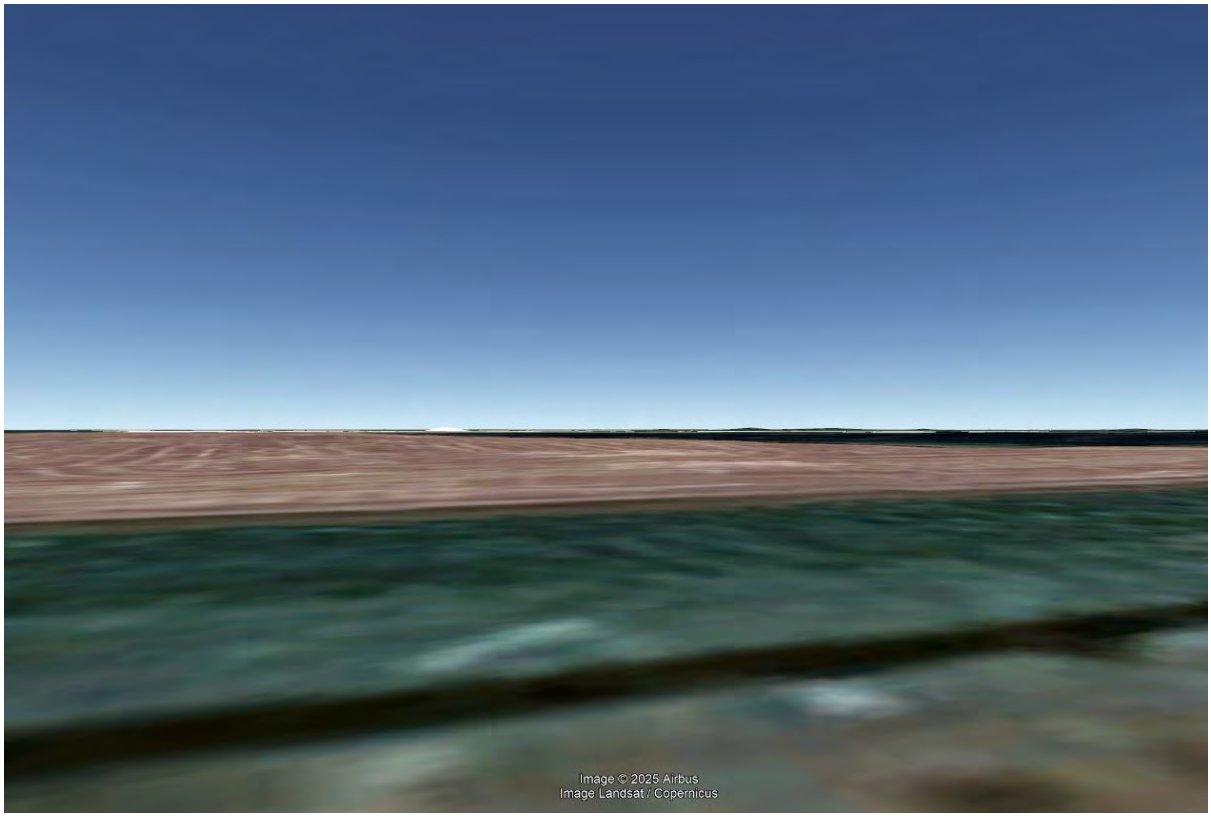


July 1st 06:00 UTC



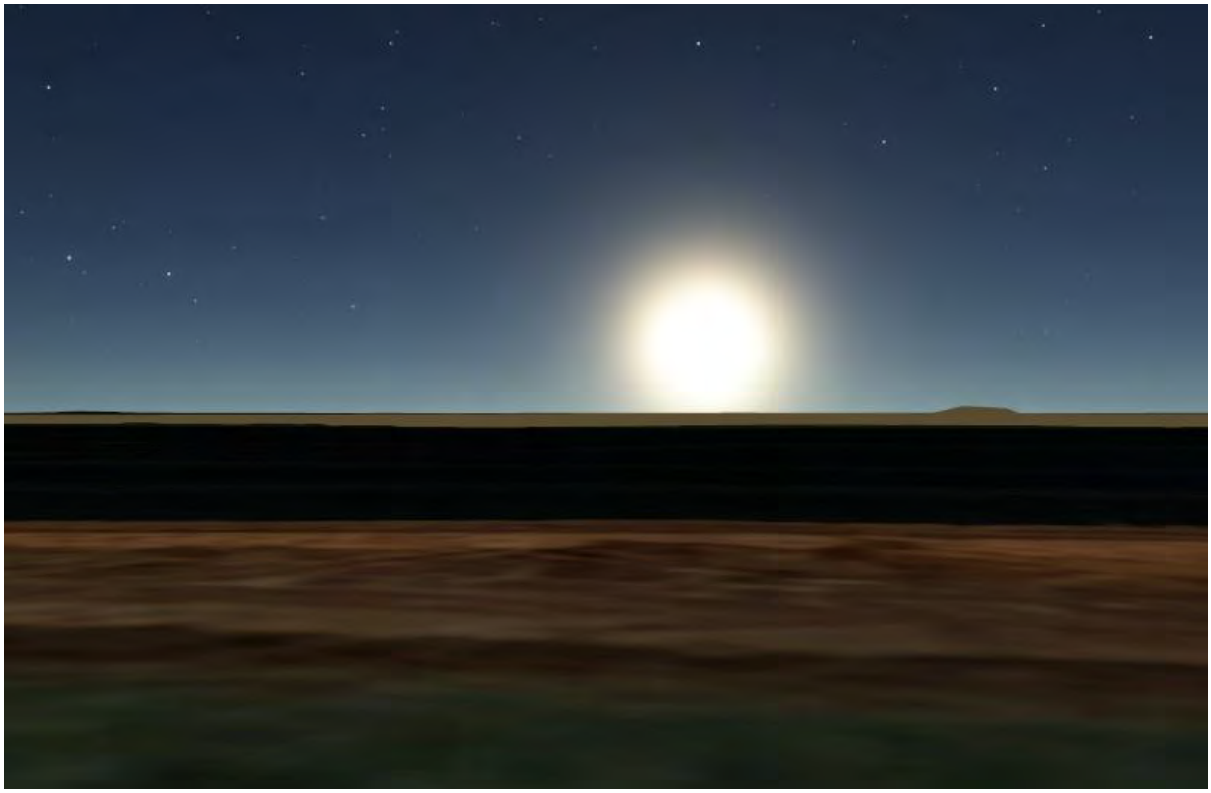
Receptor 48

Looking West

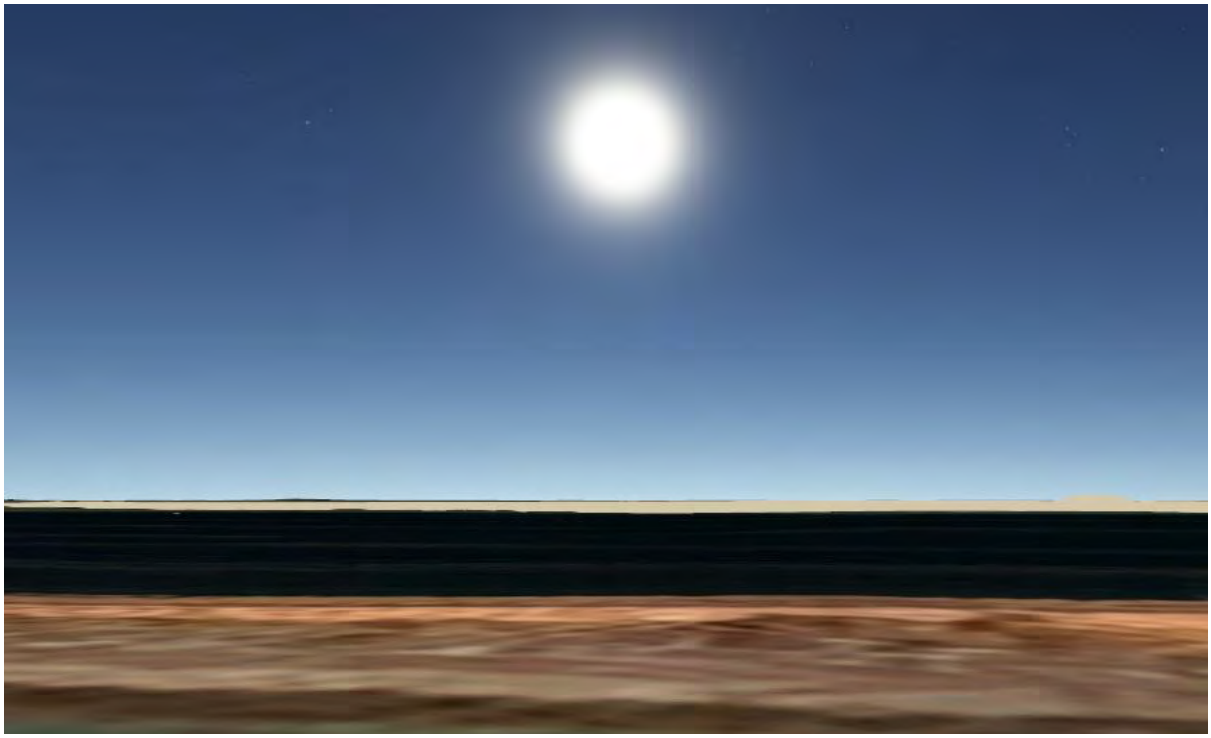


Looking East

April 1st 06:00 UTC

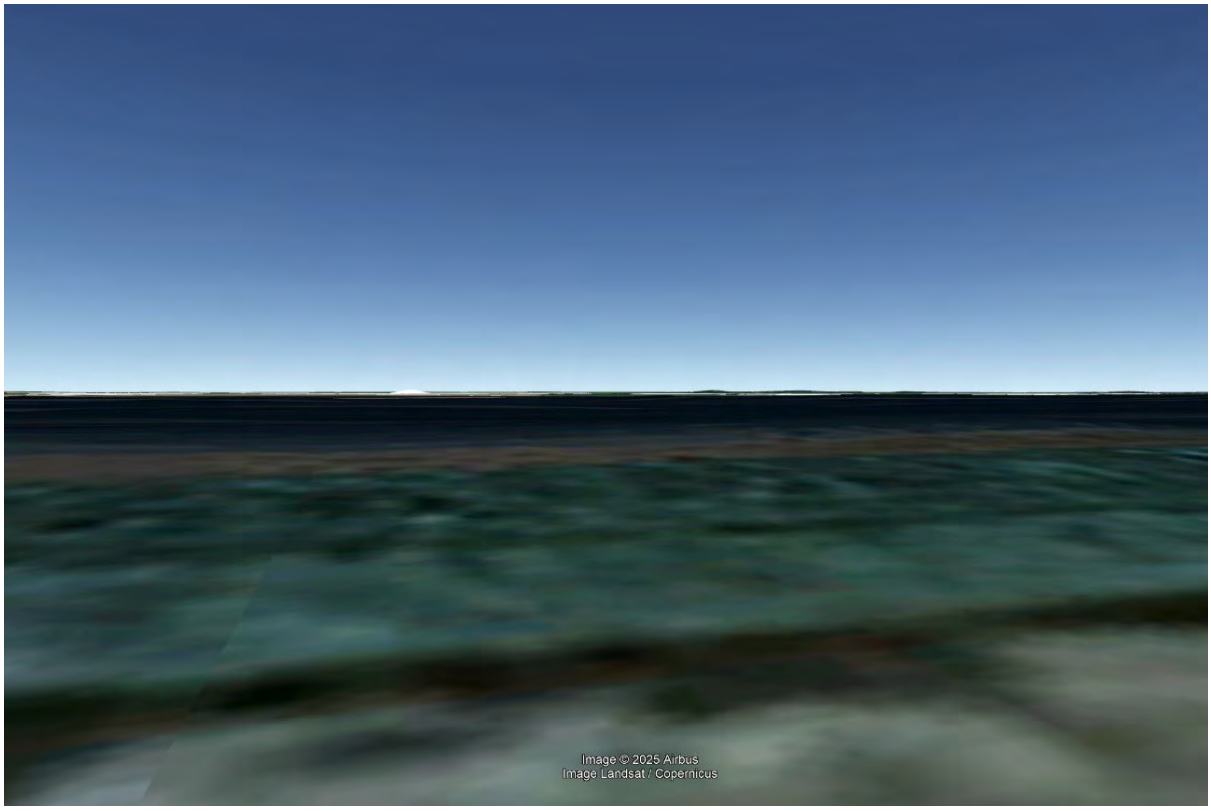


July 1st 06:00 UTC

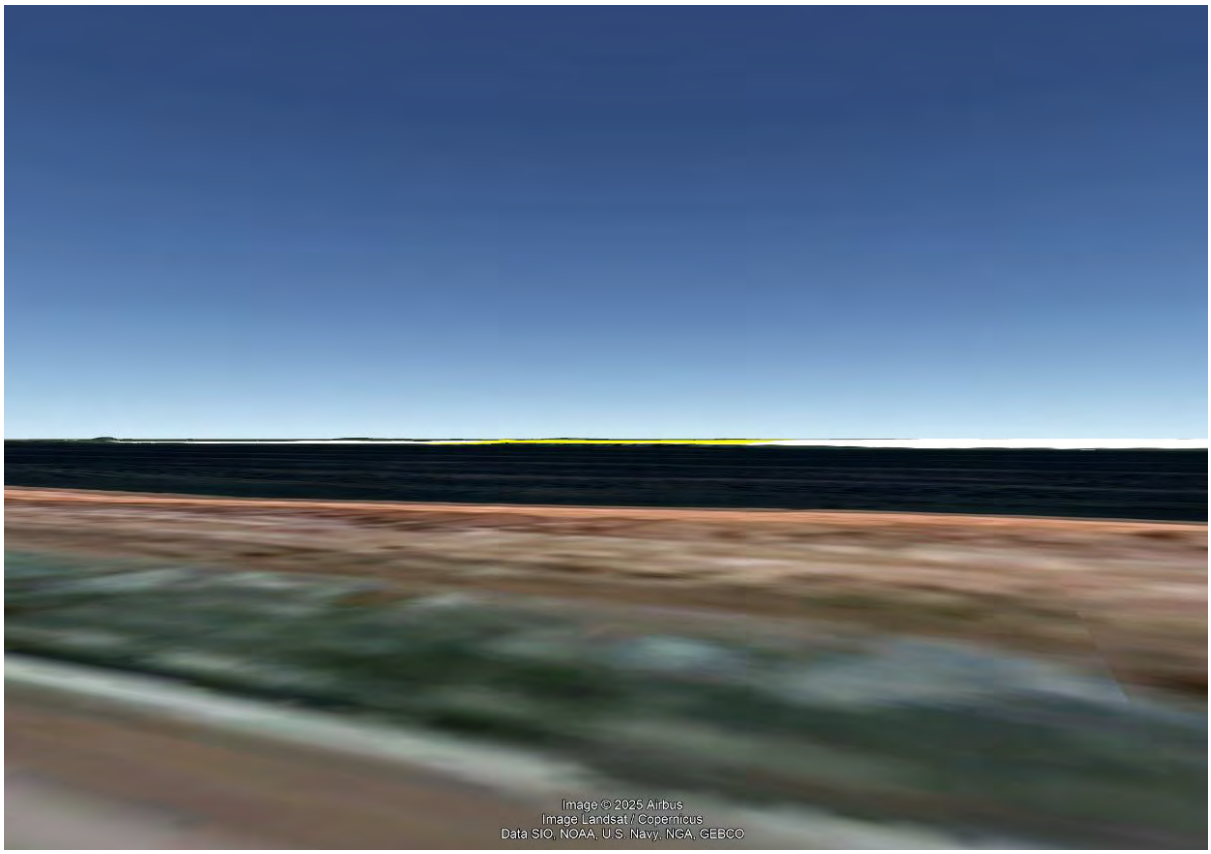


Receptor 49

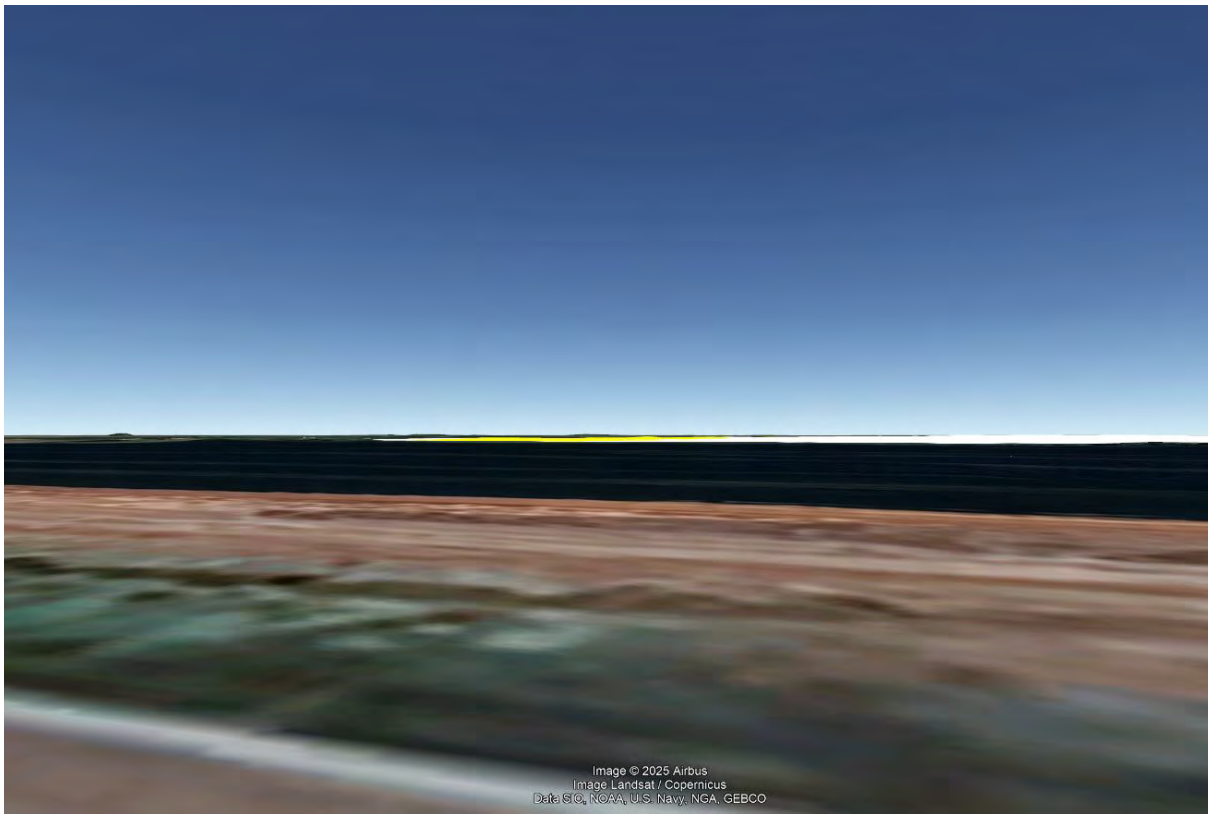
Looking West



Looking East



Receptor 50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Receptor 51

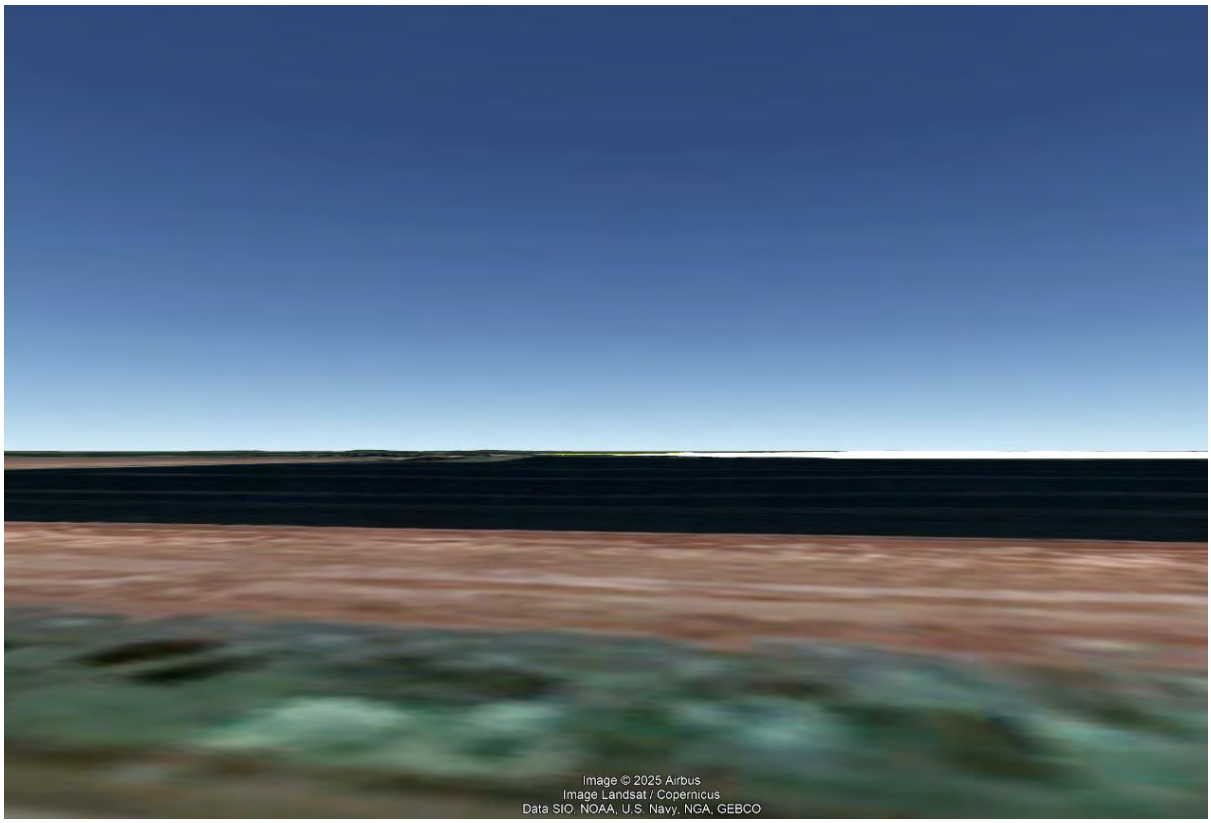
Image © 2025 Airbus
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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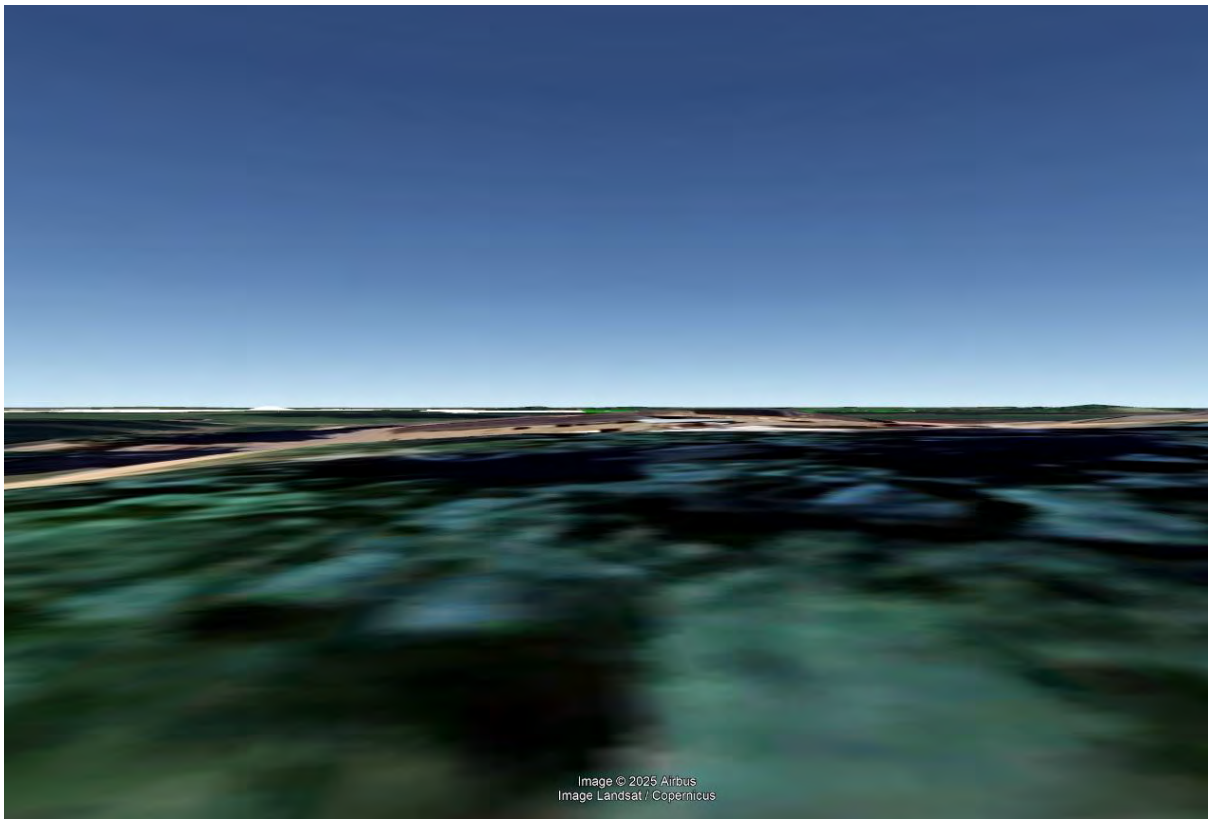
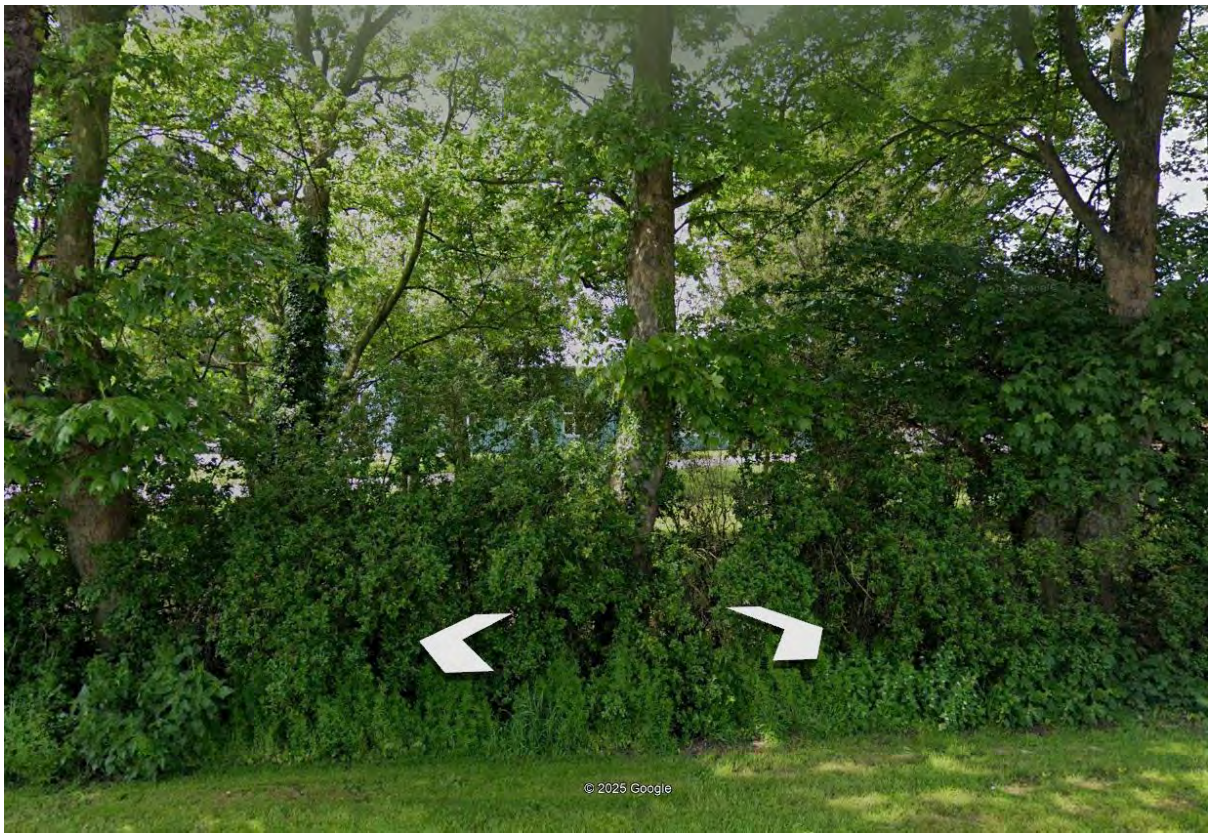
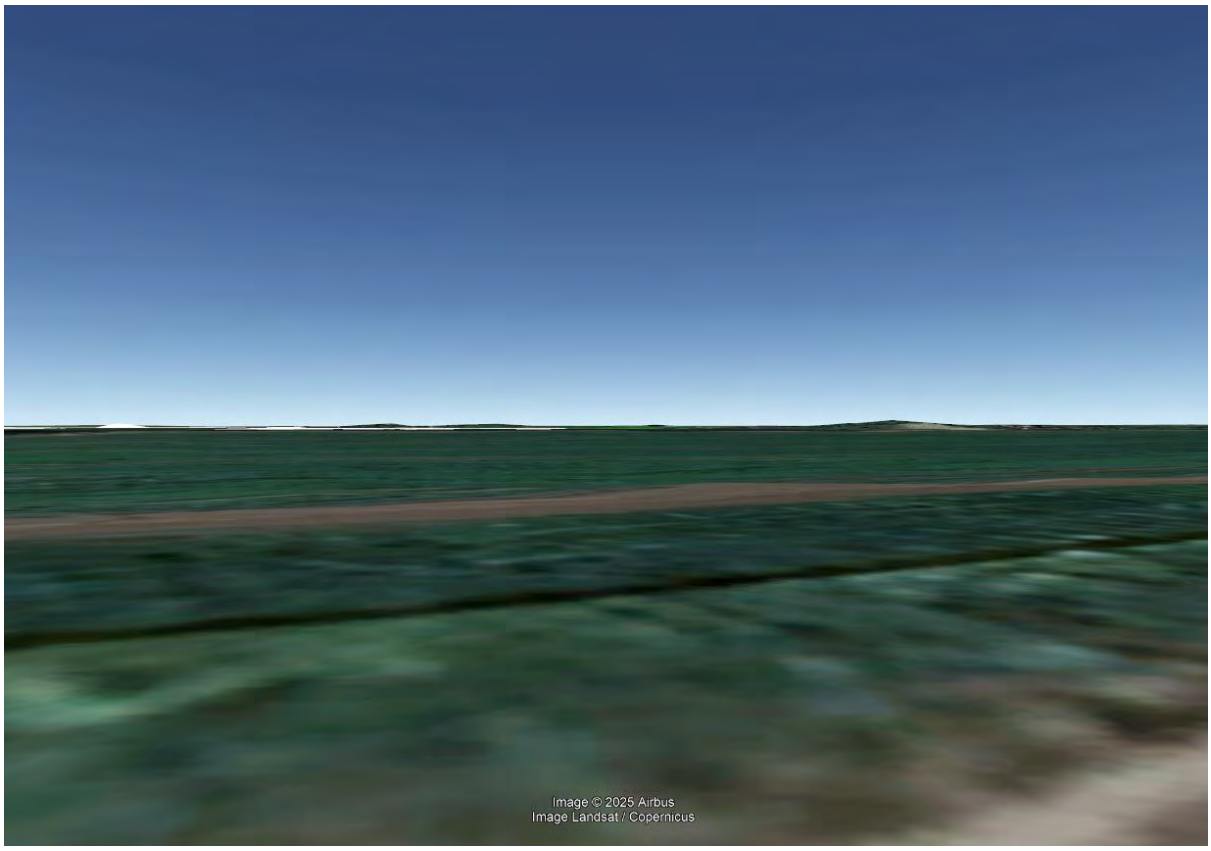
Receptor 52

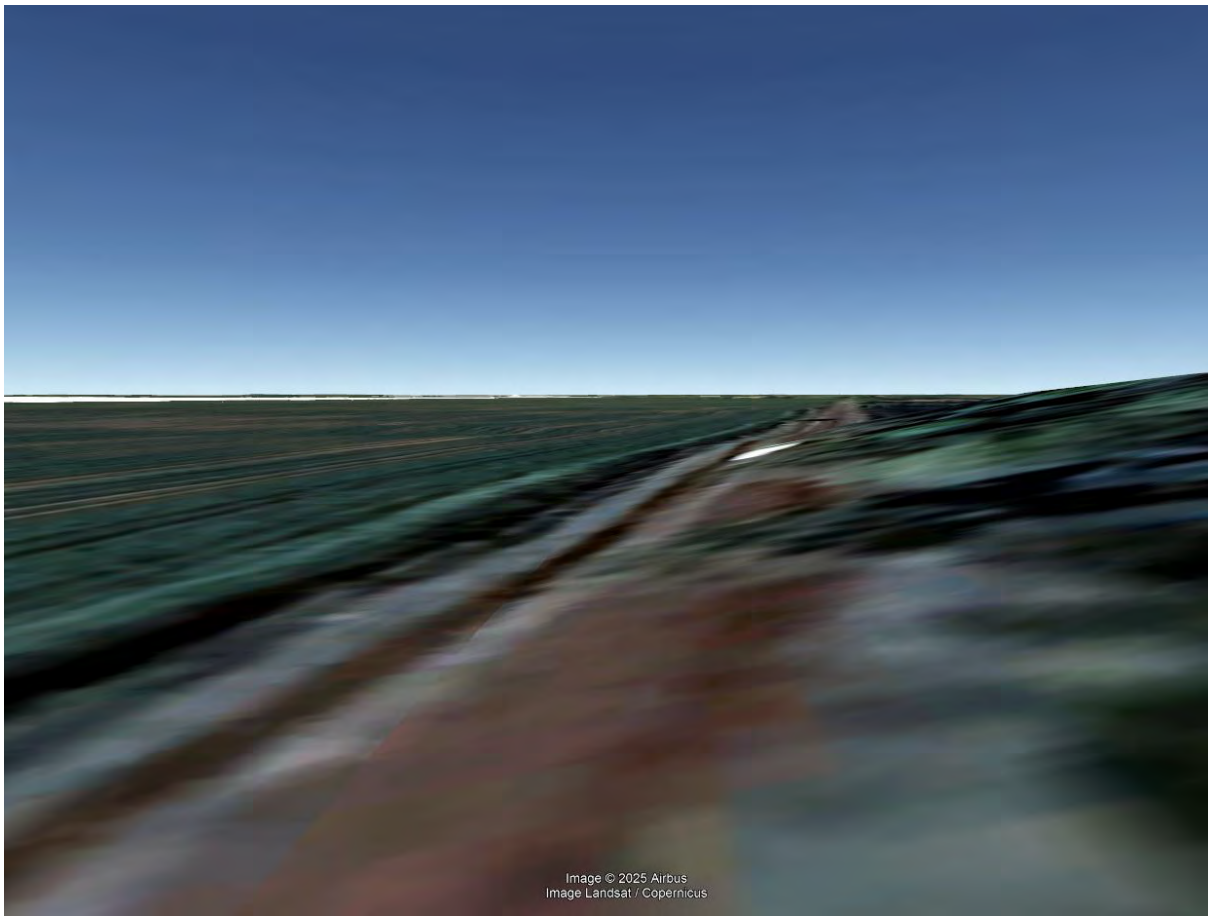




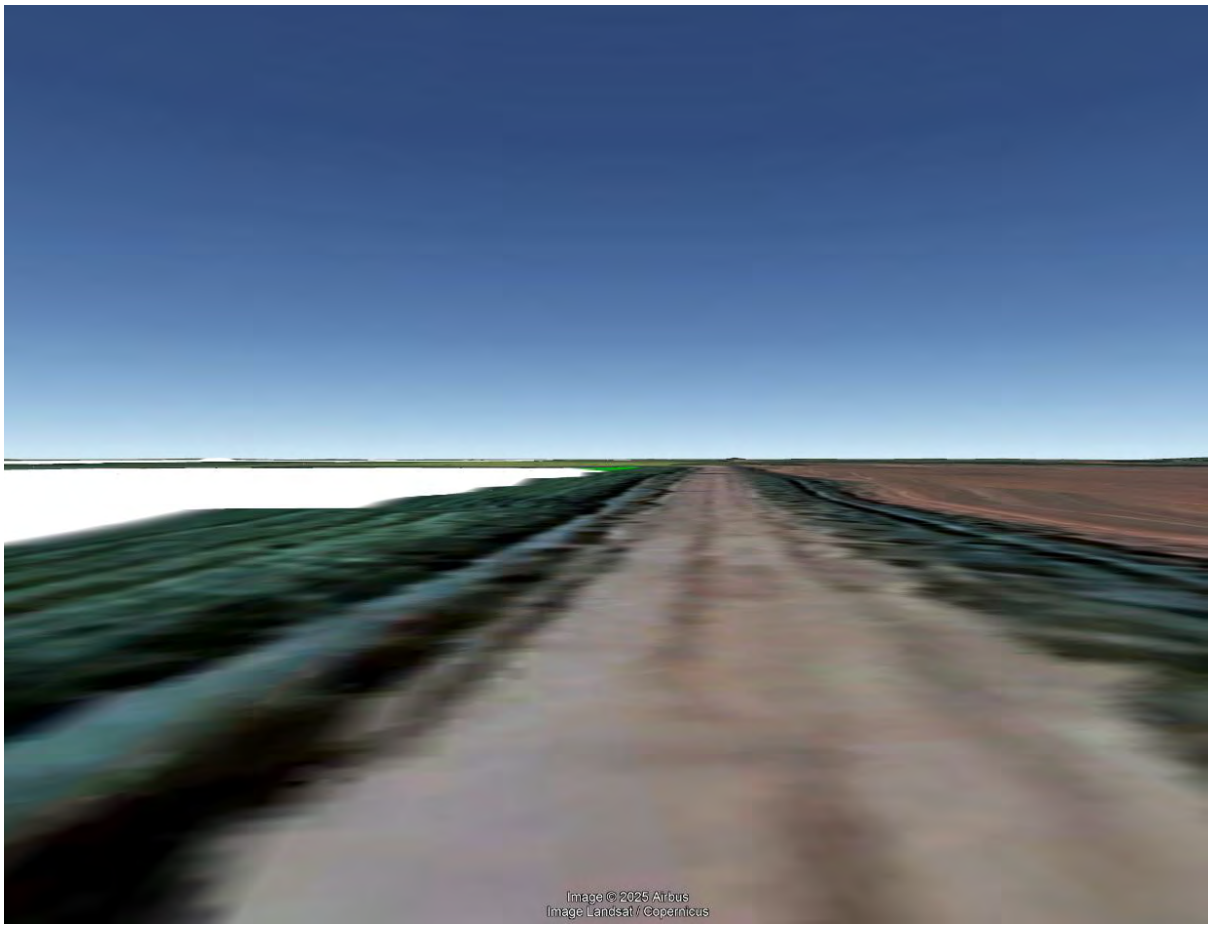
Receptor 53



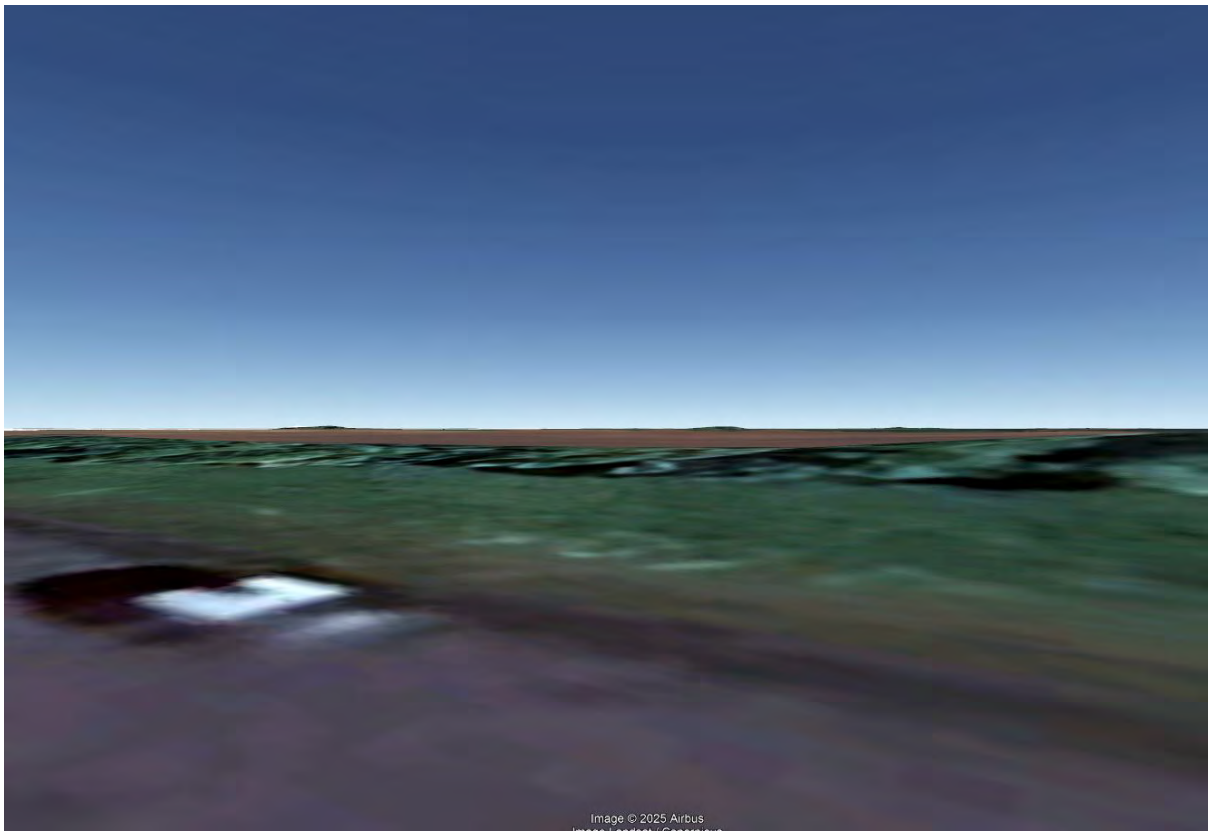
Receptor 66



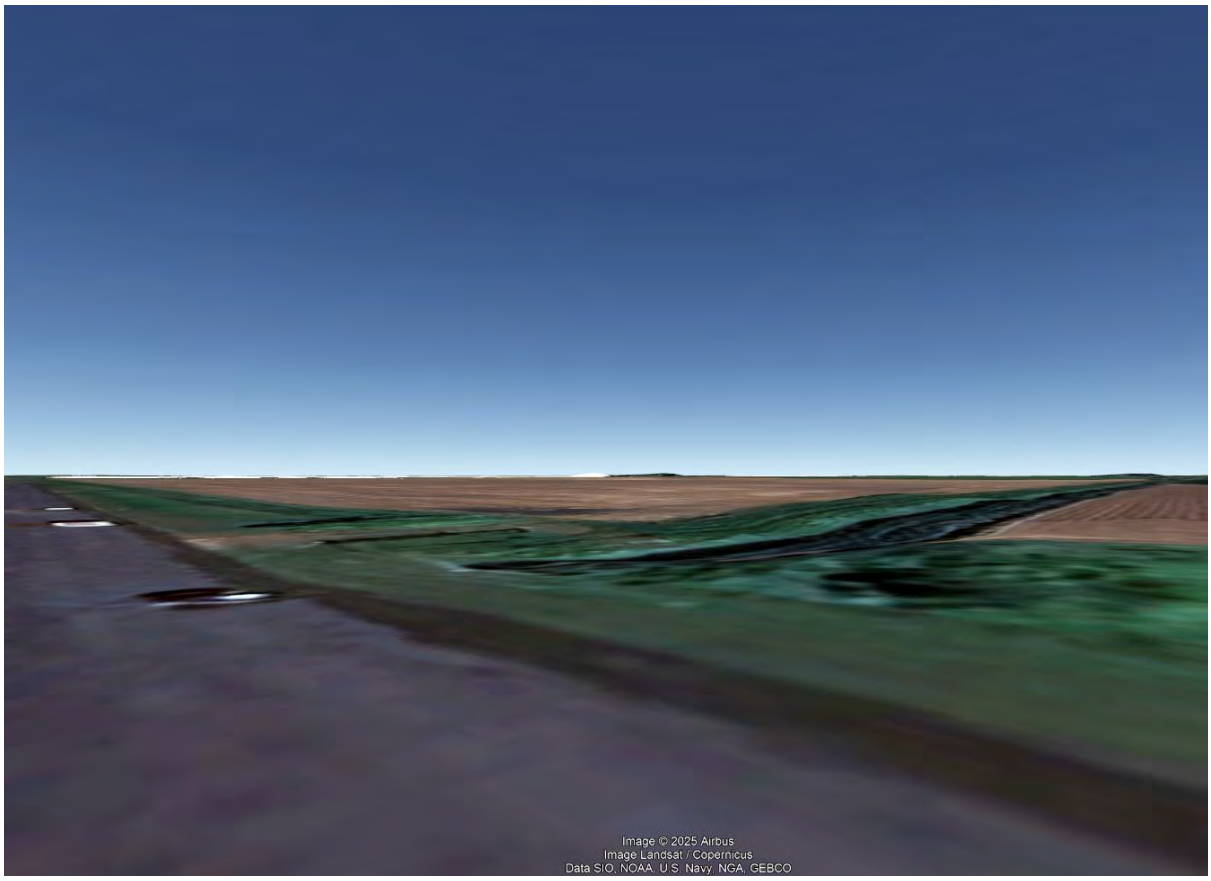
Receptor 73



Receptor 79



Receptor 80



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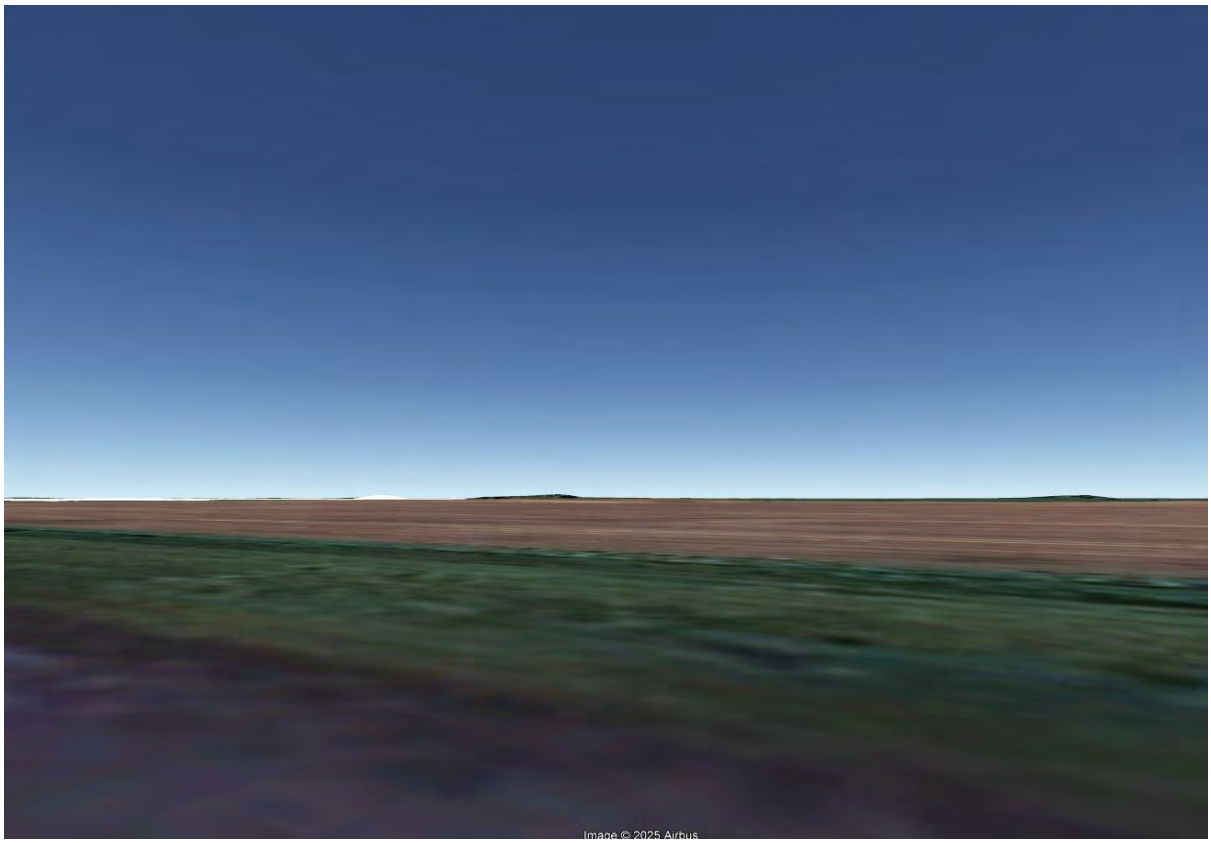
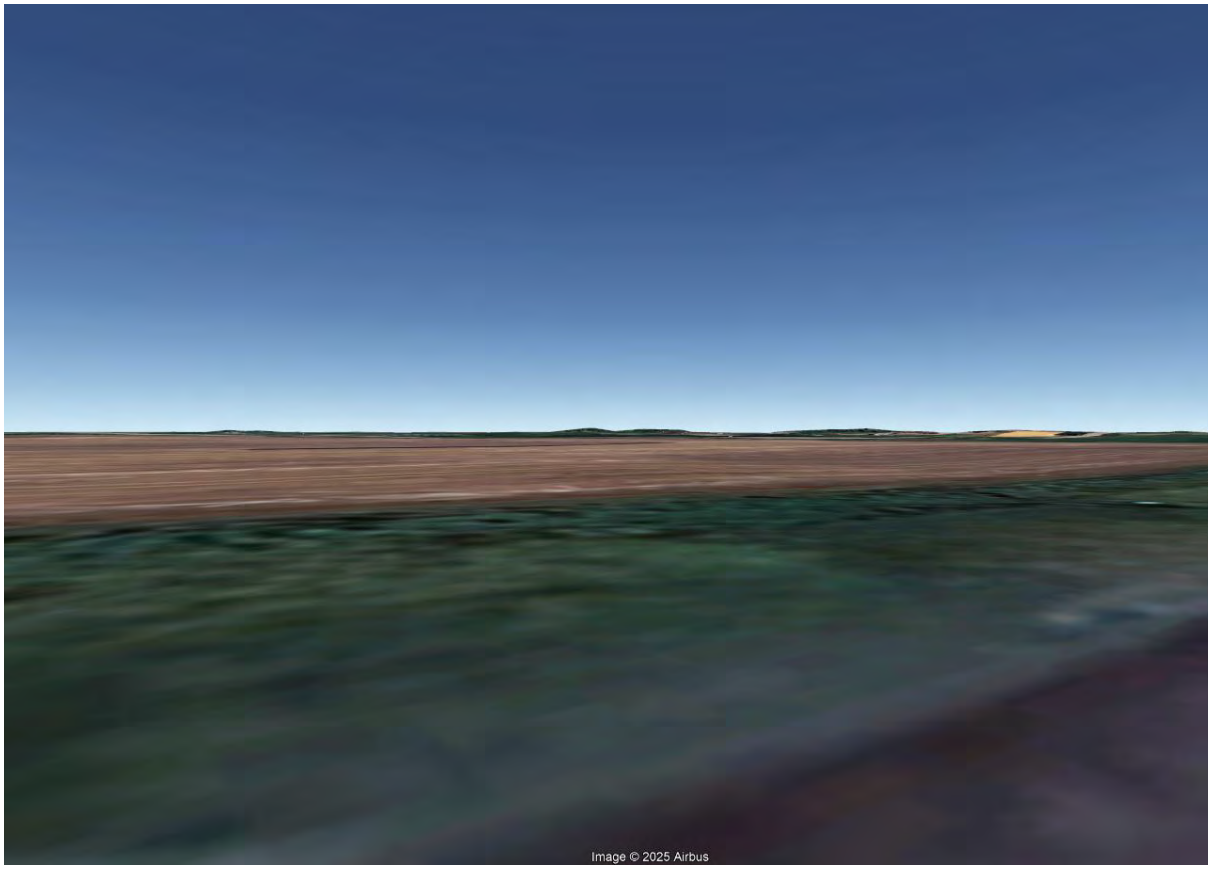
Receptor 81

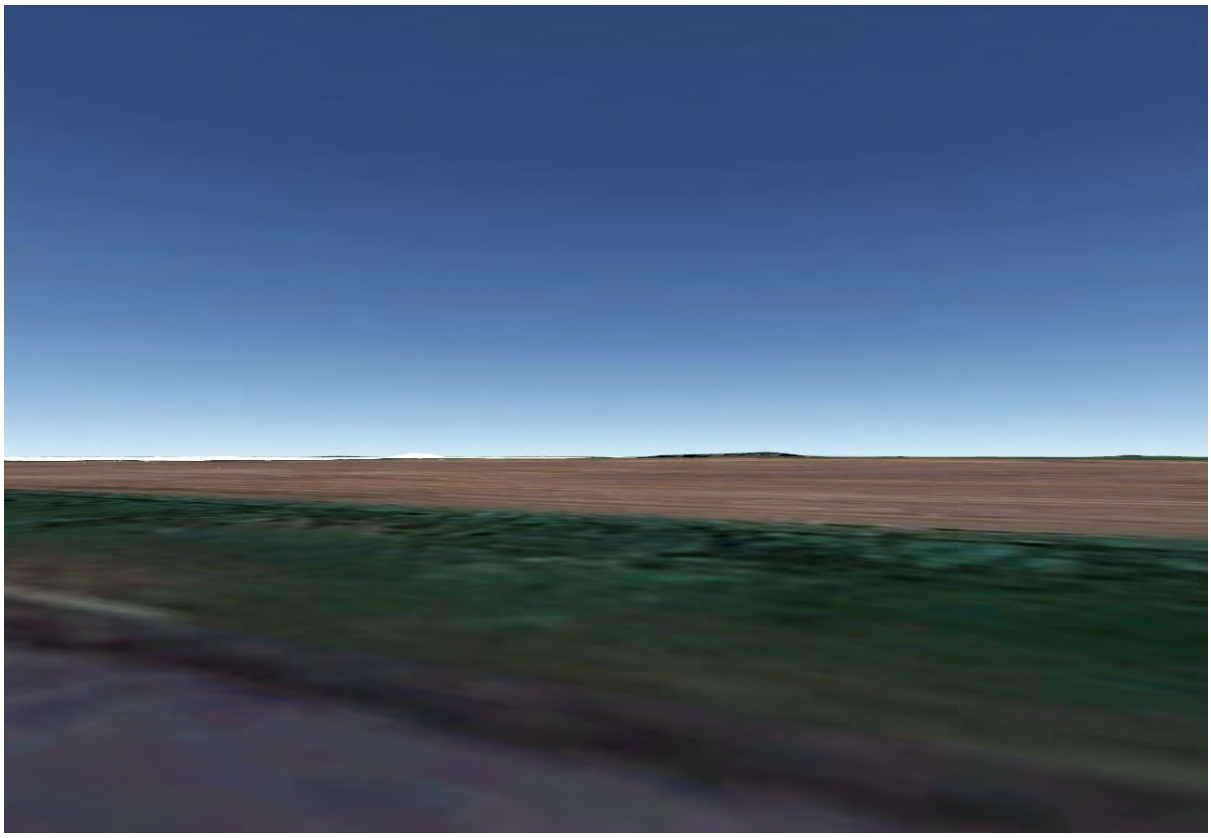


Receptor 82

Looking West

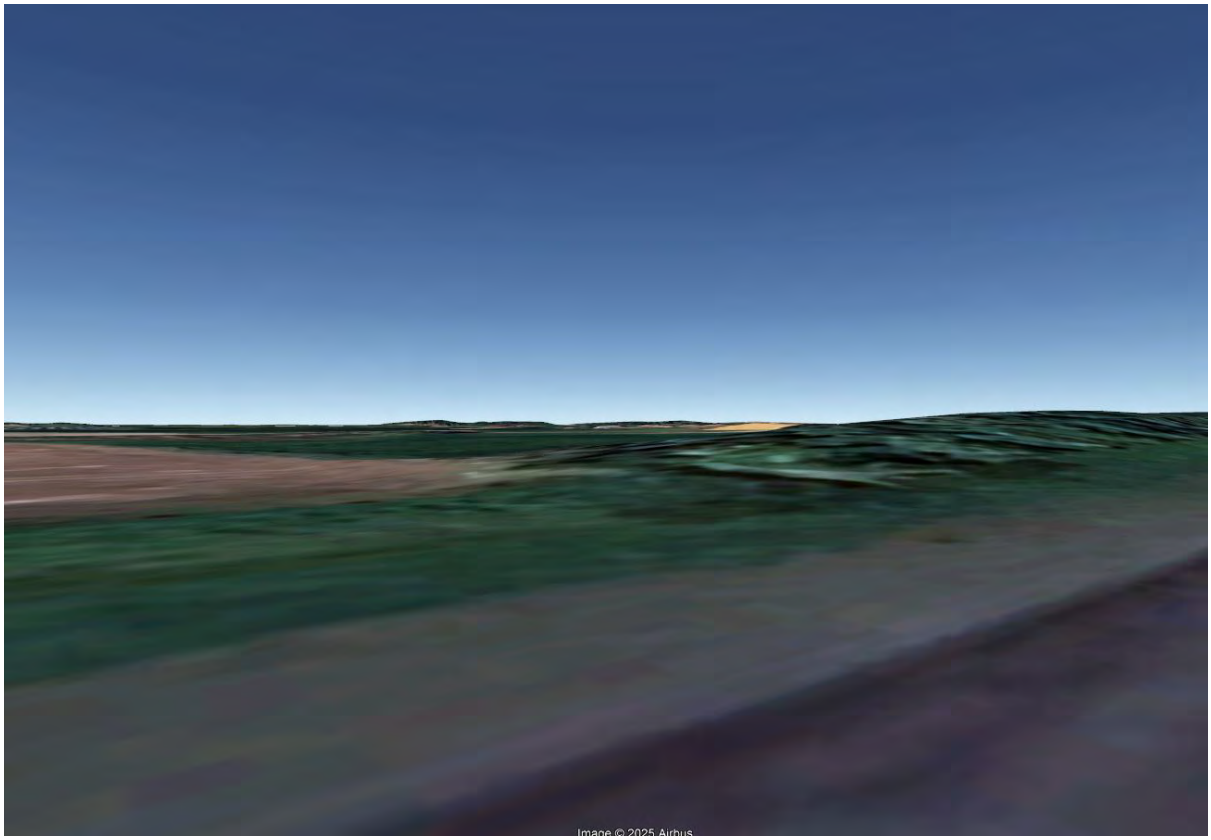


Looking East



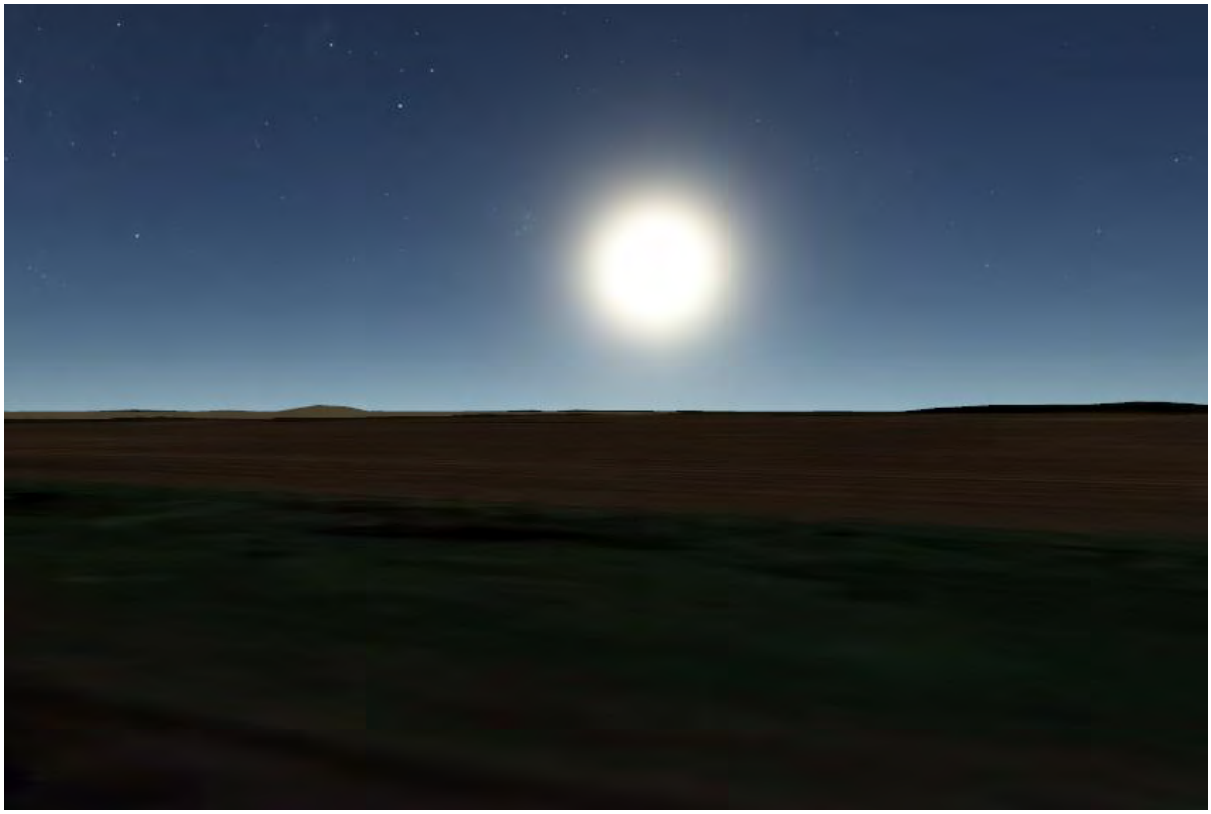
Receptor 83

Looking West

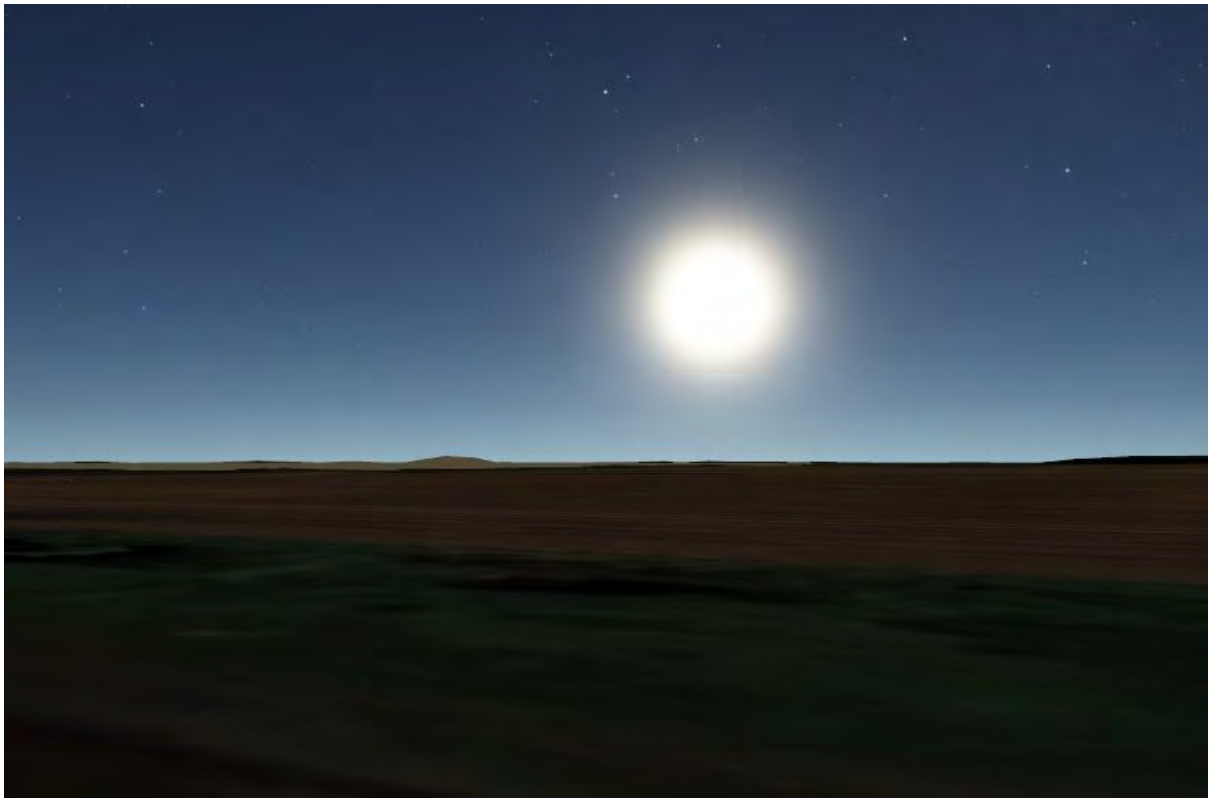


Looking East

May 15th 05:00 UTC

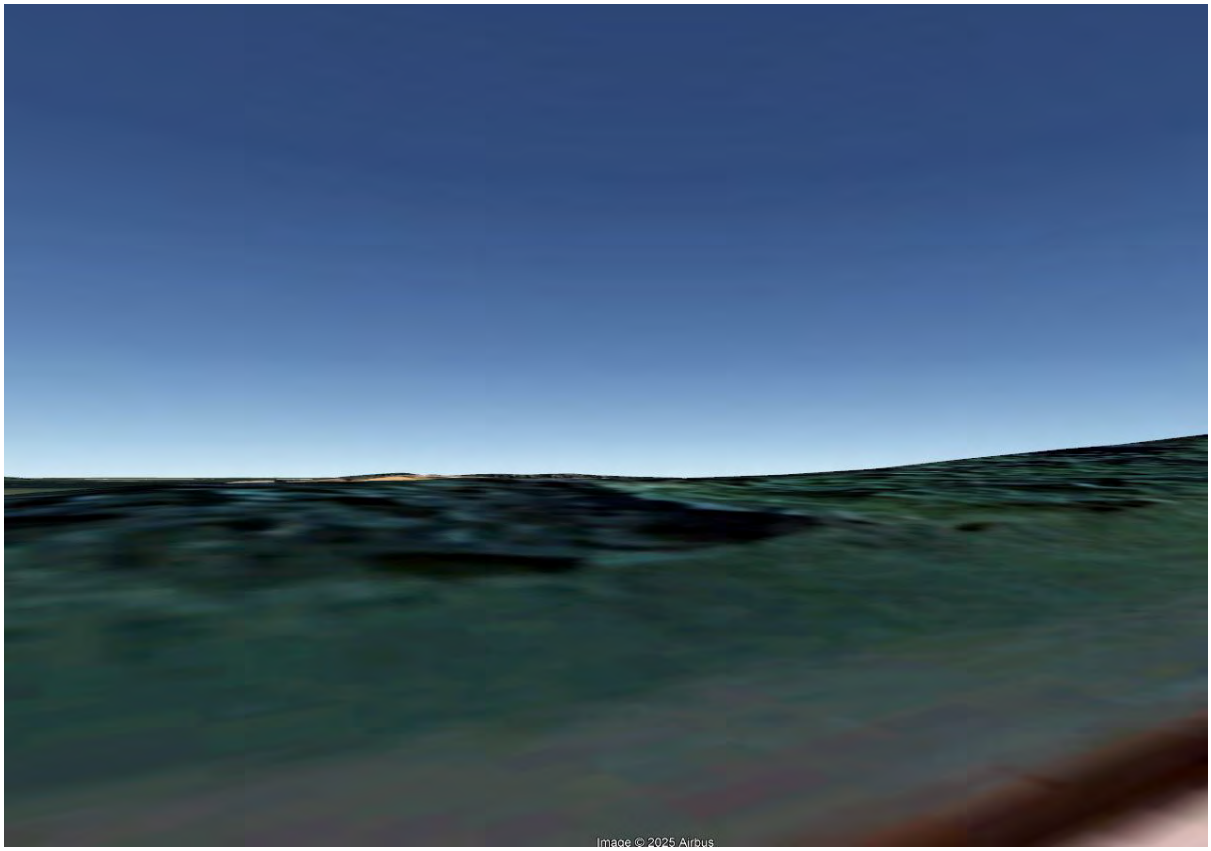


July 1st 05:00 UTC



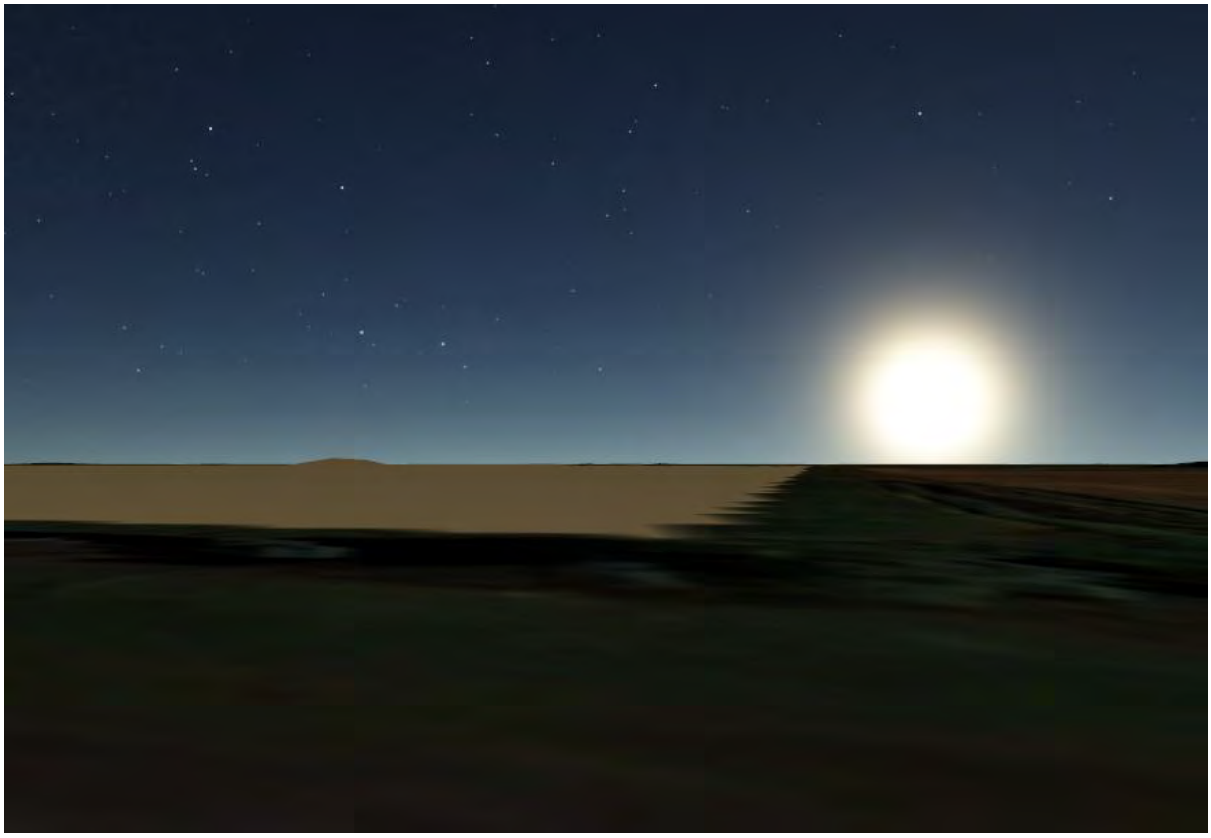
Receptor 84

Looking West

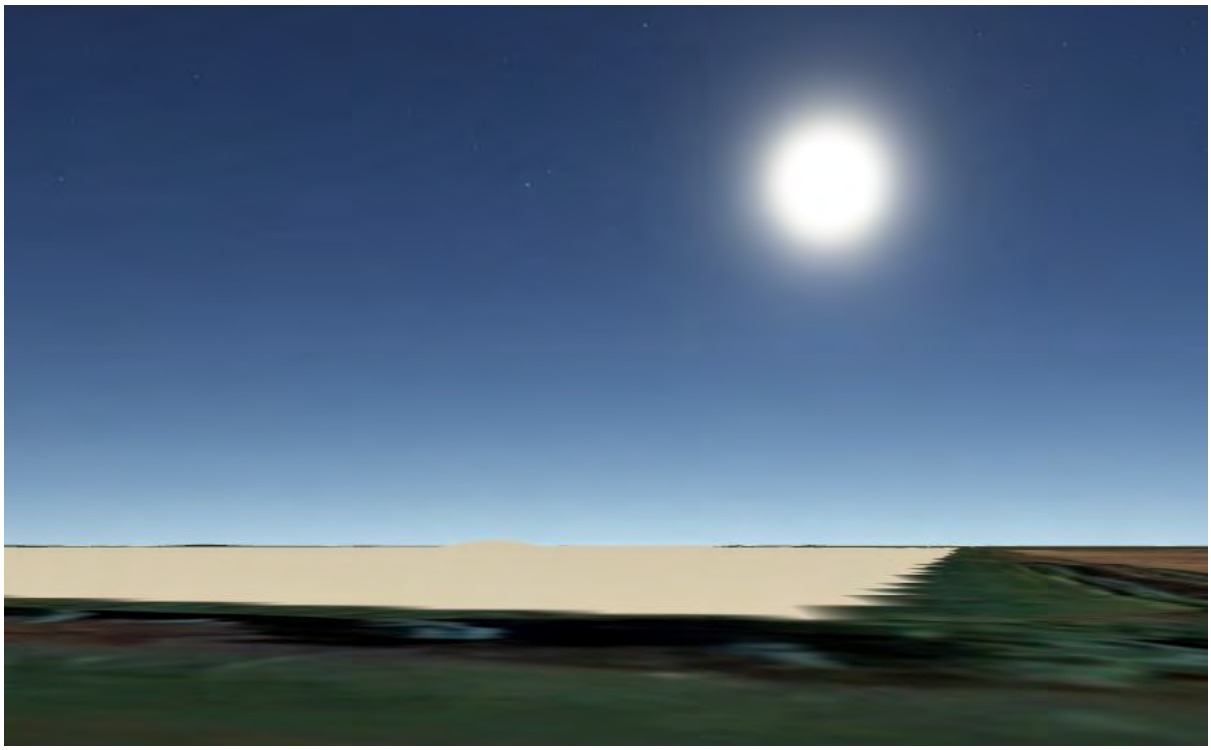


Looking East

April 1st 06:00 UTC

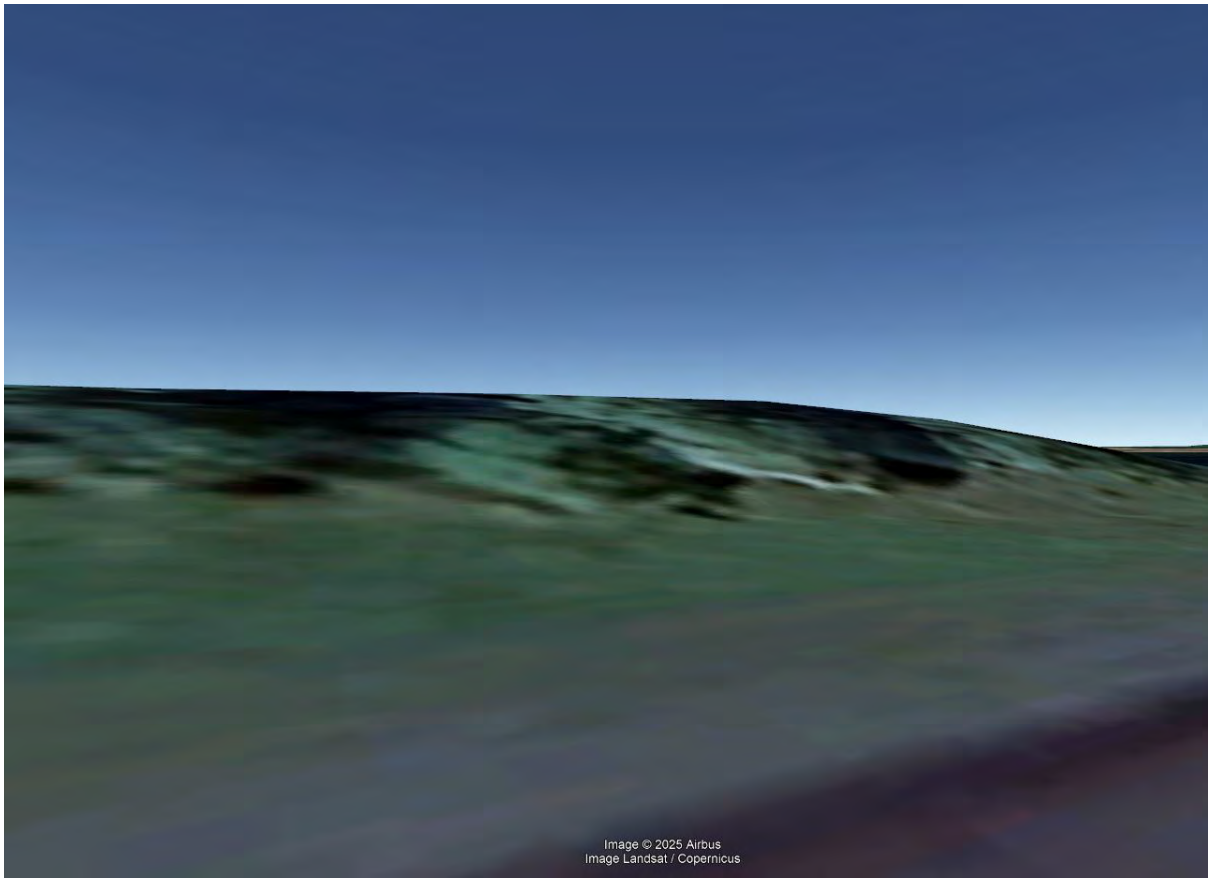


July 1st 06:00 UTC



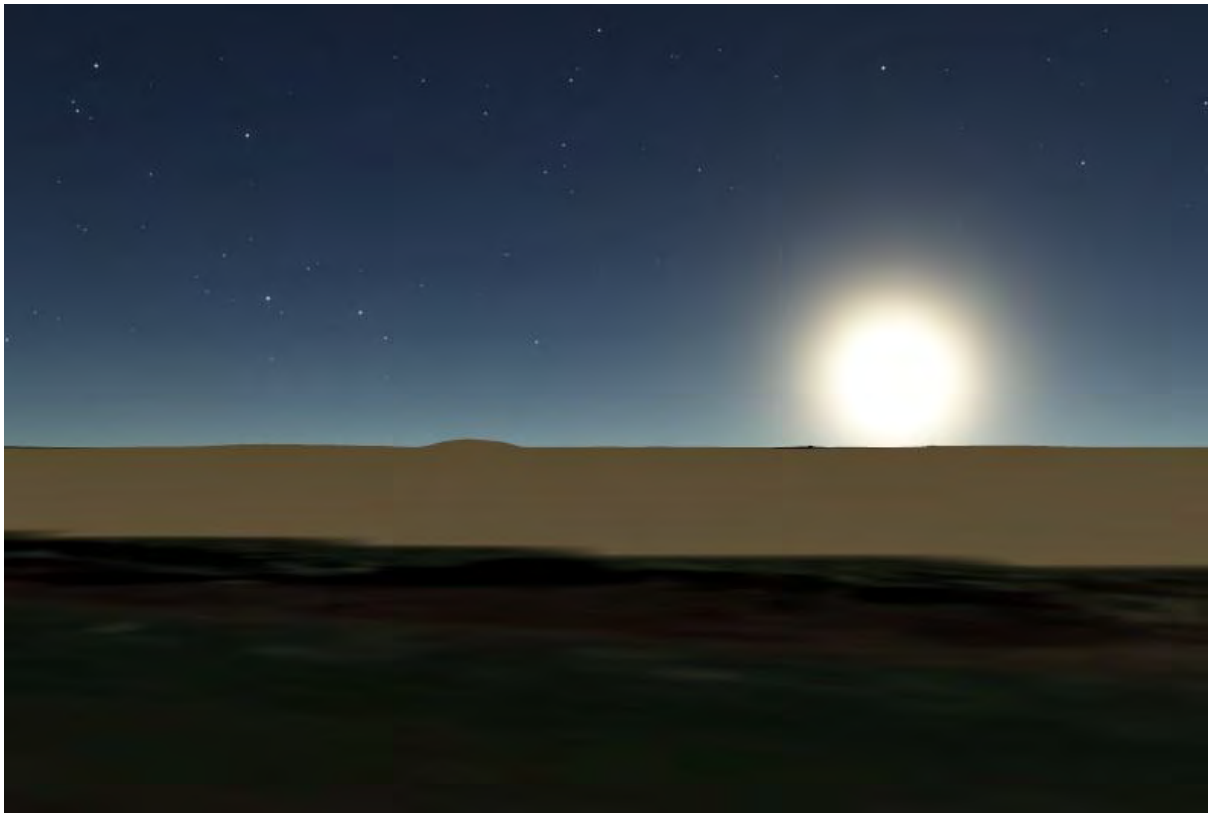
Receptor 85

Looking West

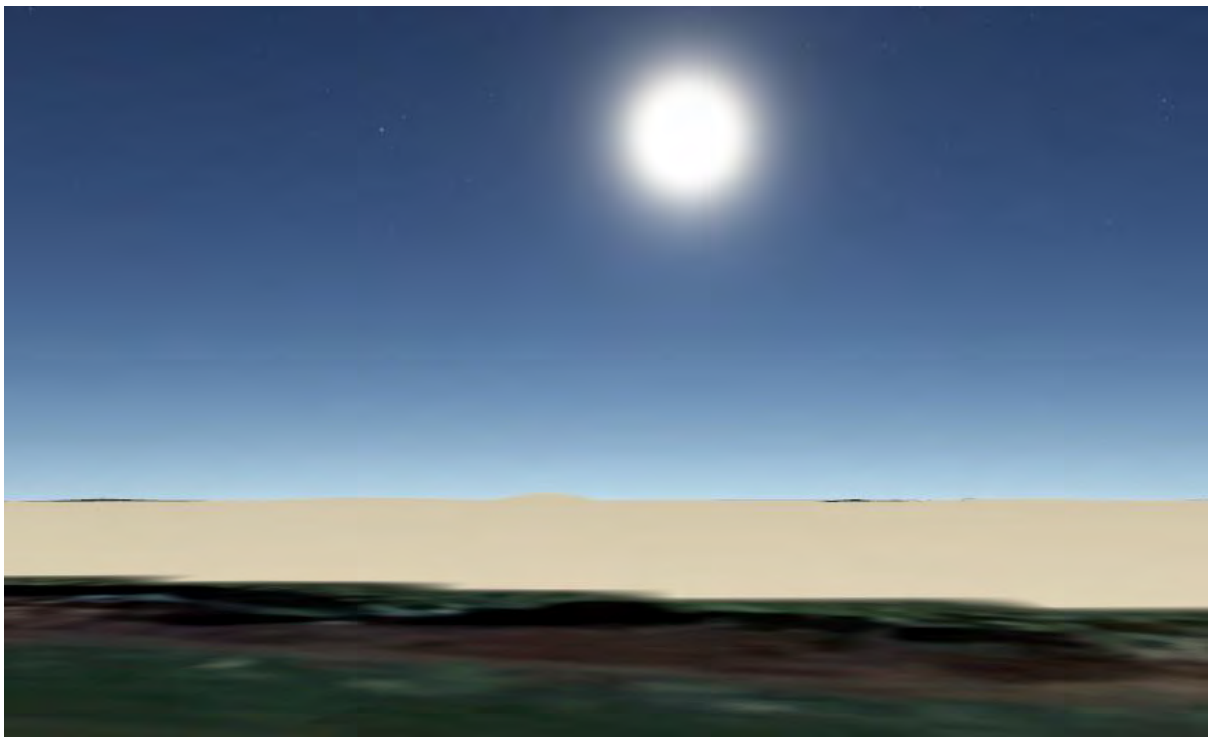


Looking East

April 1st 06:00 UTC



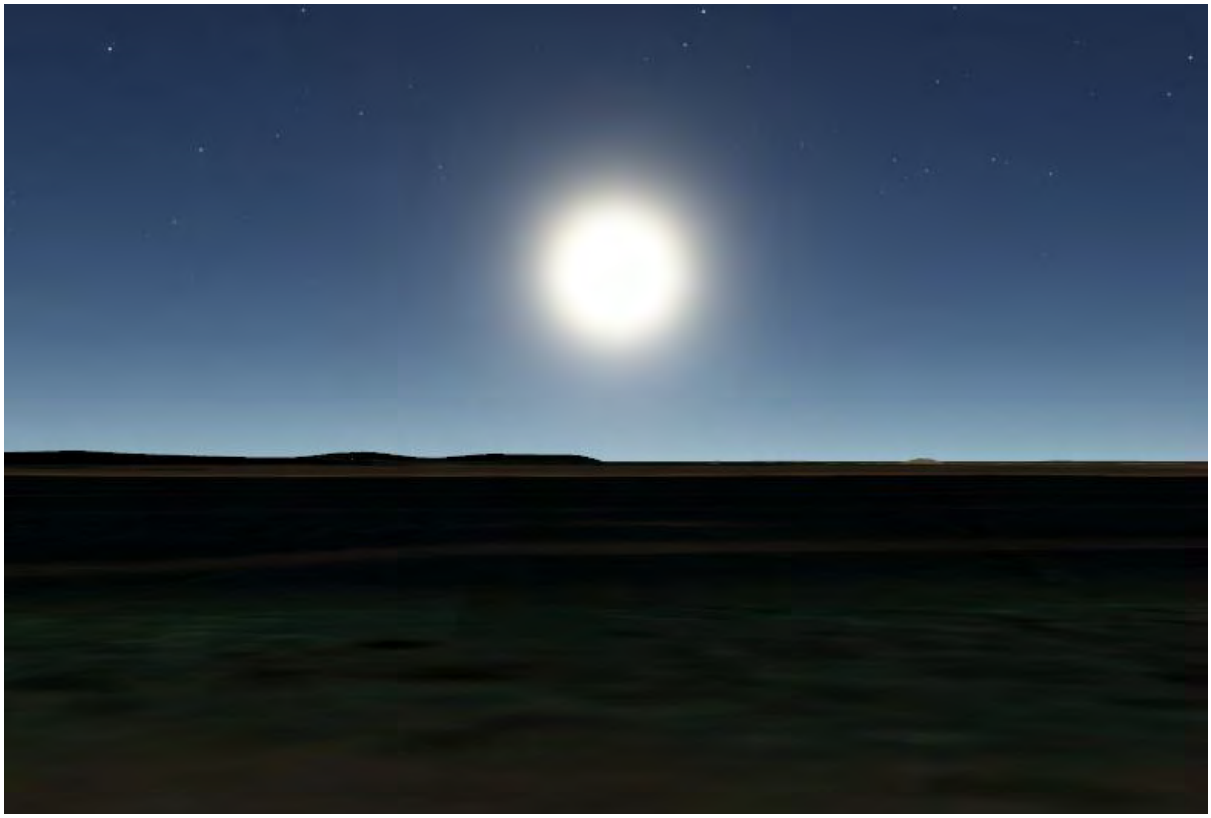
July 1st 06:00 UTC



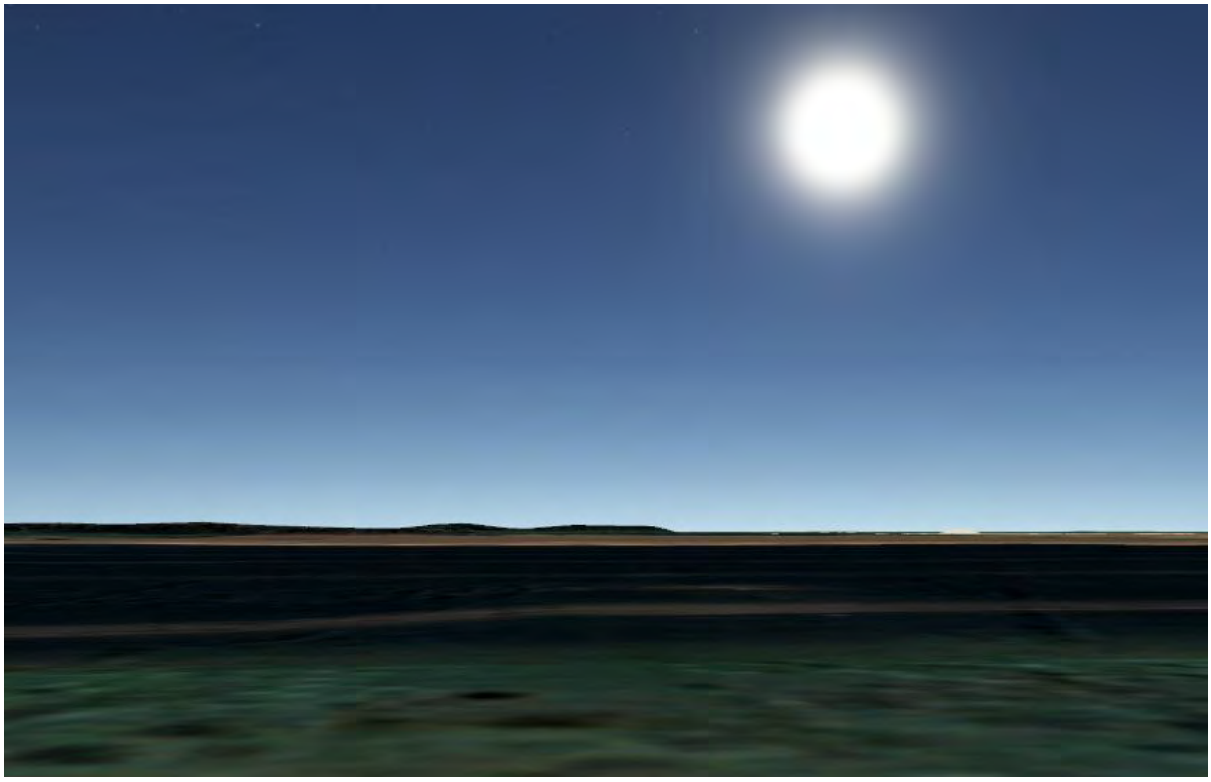
Receptor 86

Looking West

April 15th 18:00 UTC

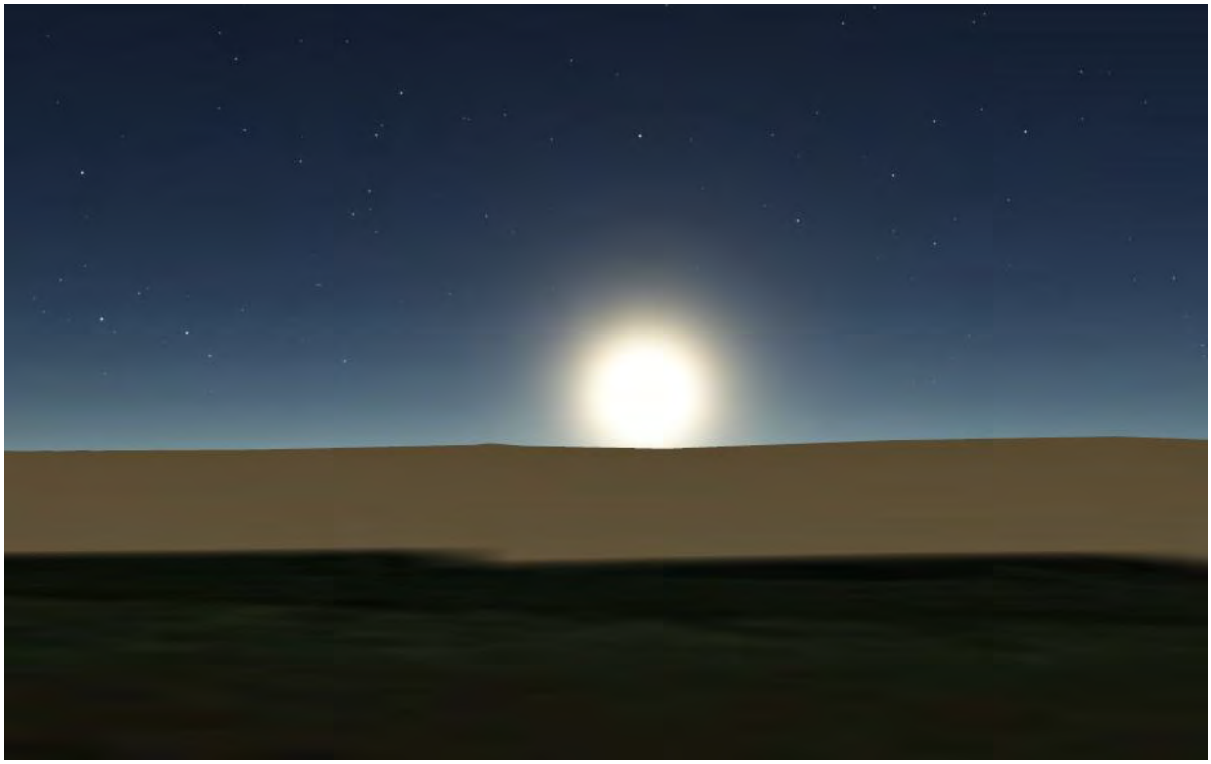


July 1st 18:00 UTC

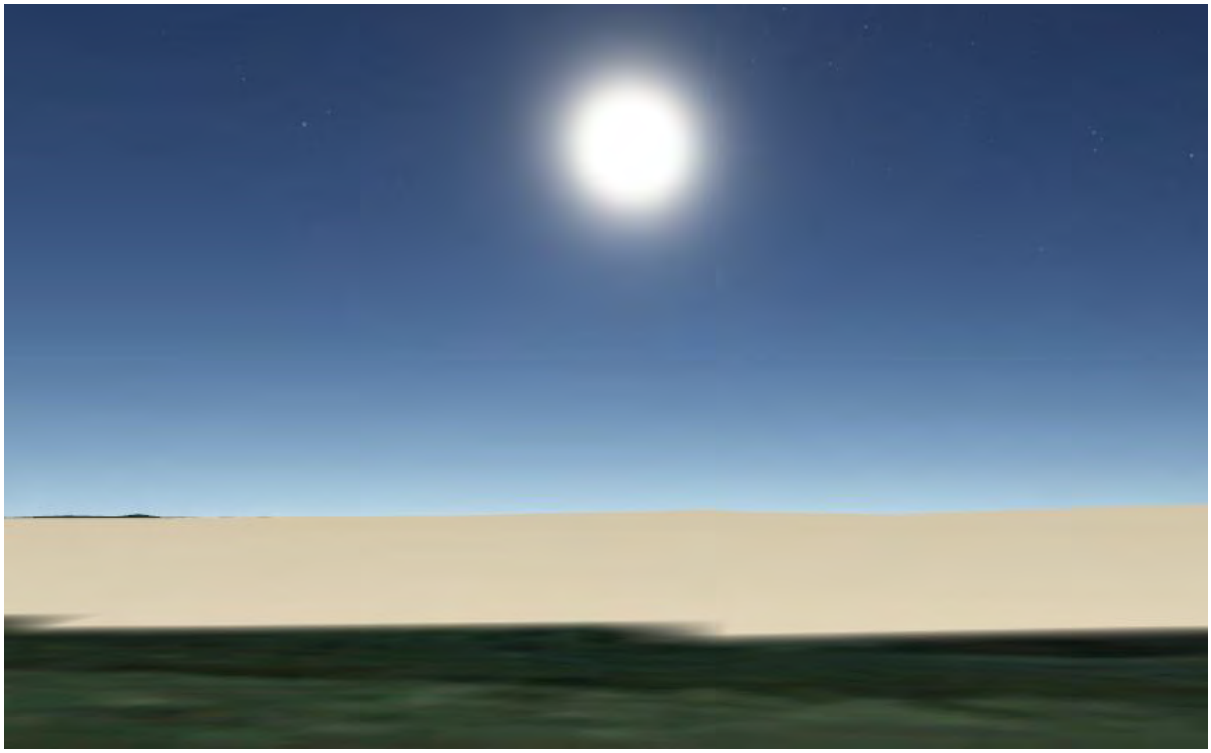


Looking East

April 1st 06:00UTC



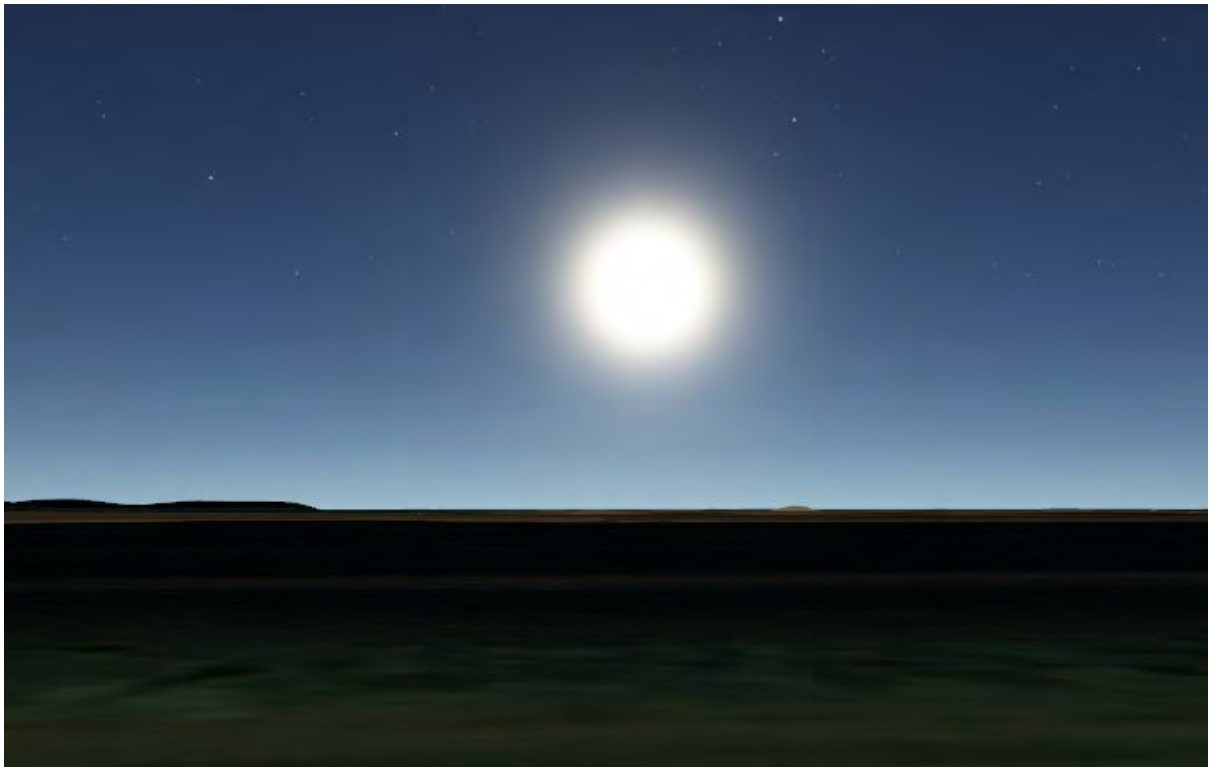
July 1st 06:00 UTC



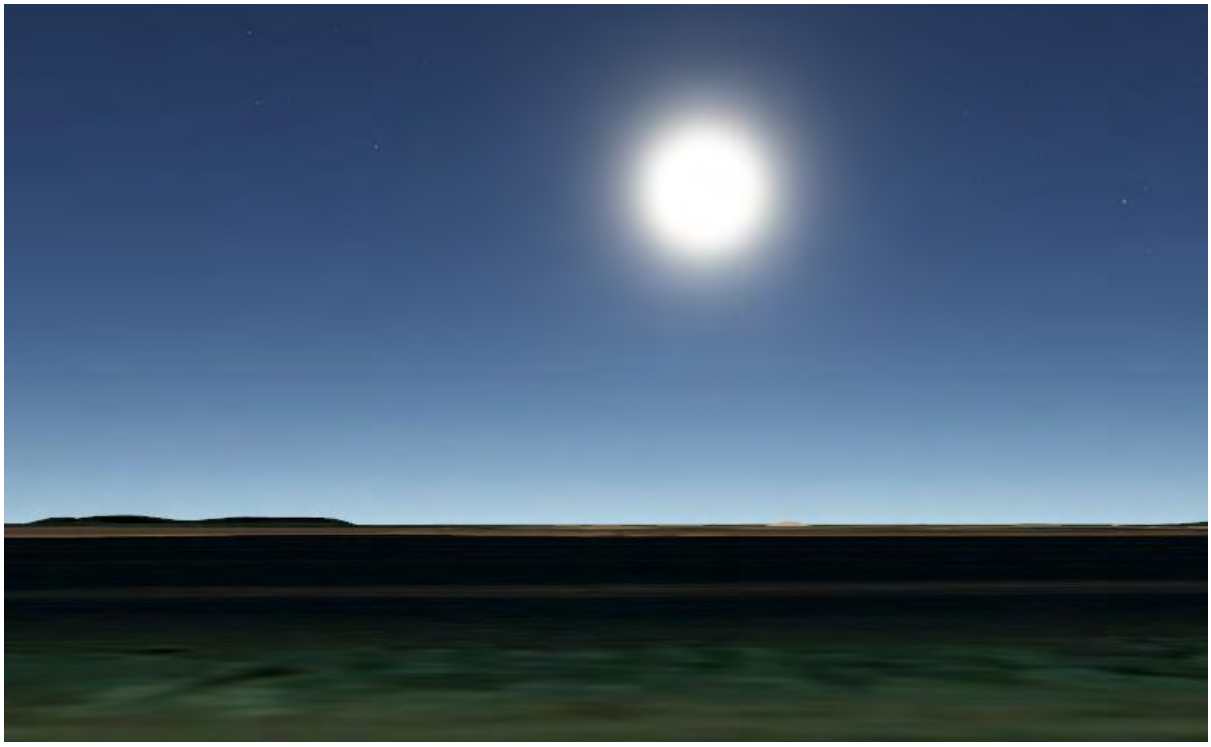
Receptor 87

Looking West

April 20th 18:00 UTC

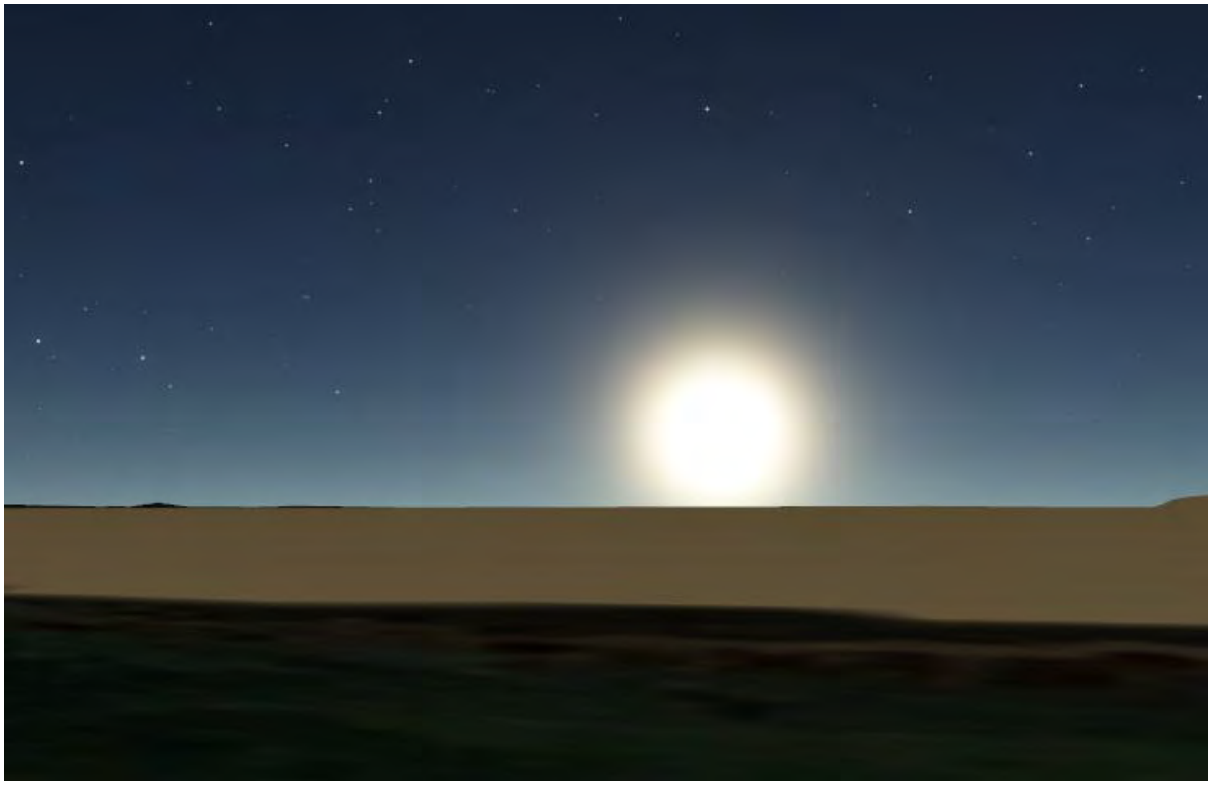


August 1st 18:00 UTC

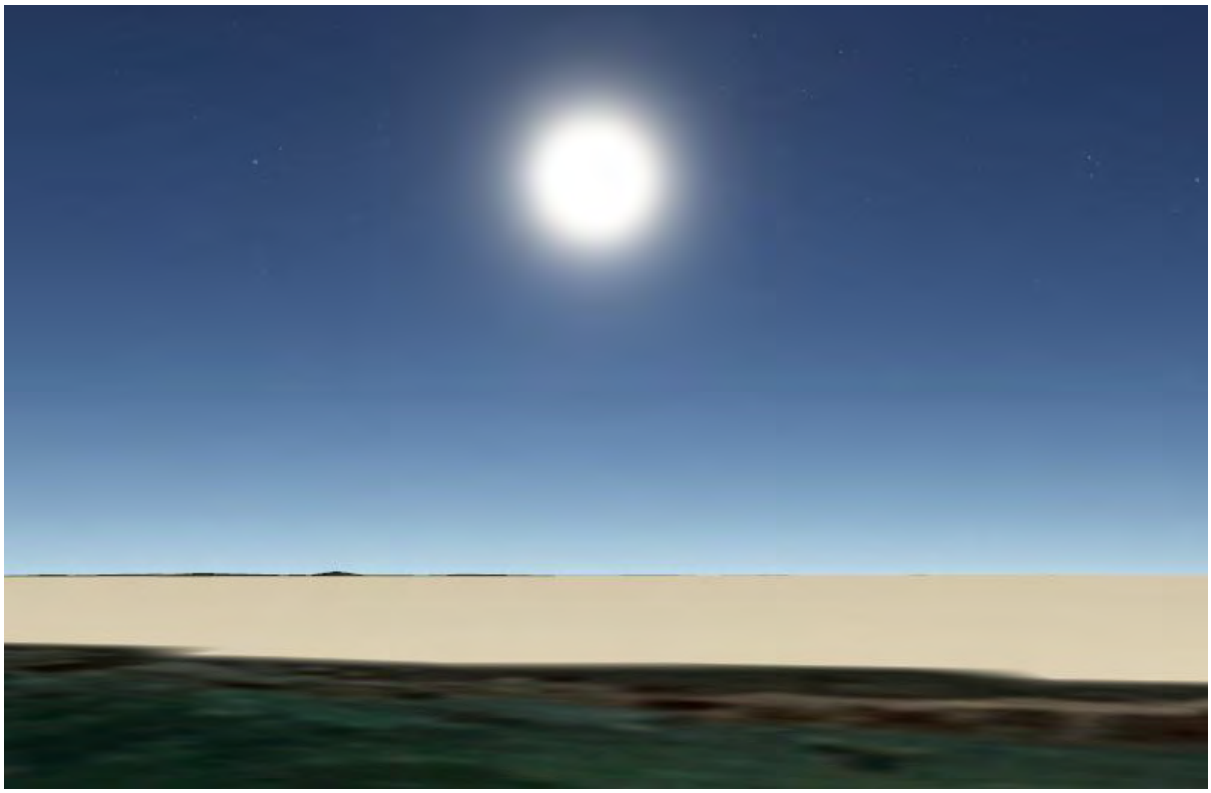


Looking East

April 1st 06:00 UTC

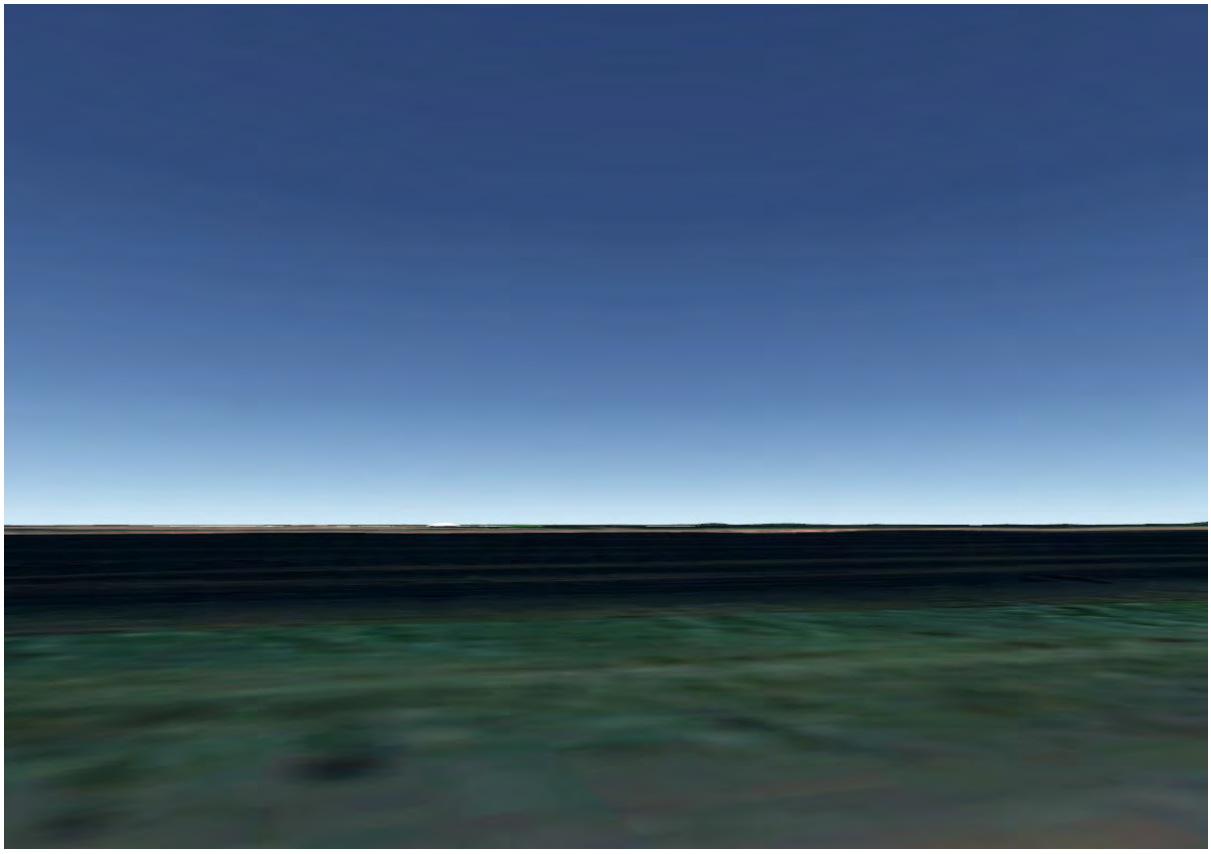


July 1st 06:00 UTC



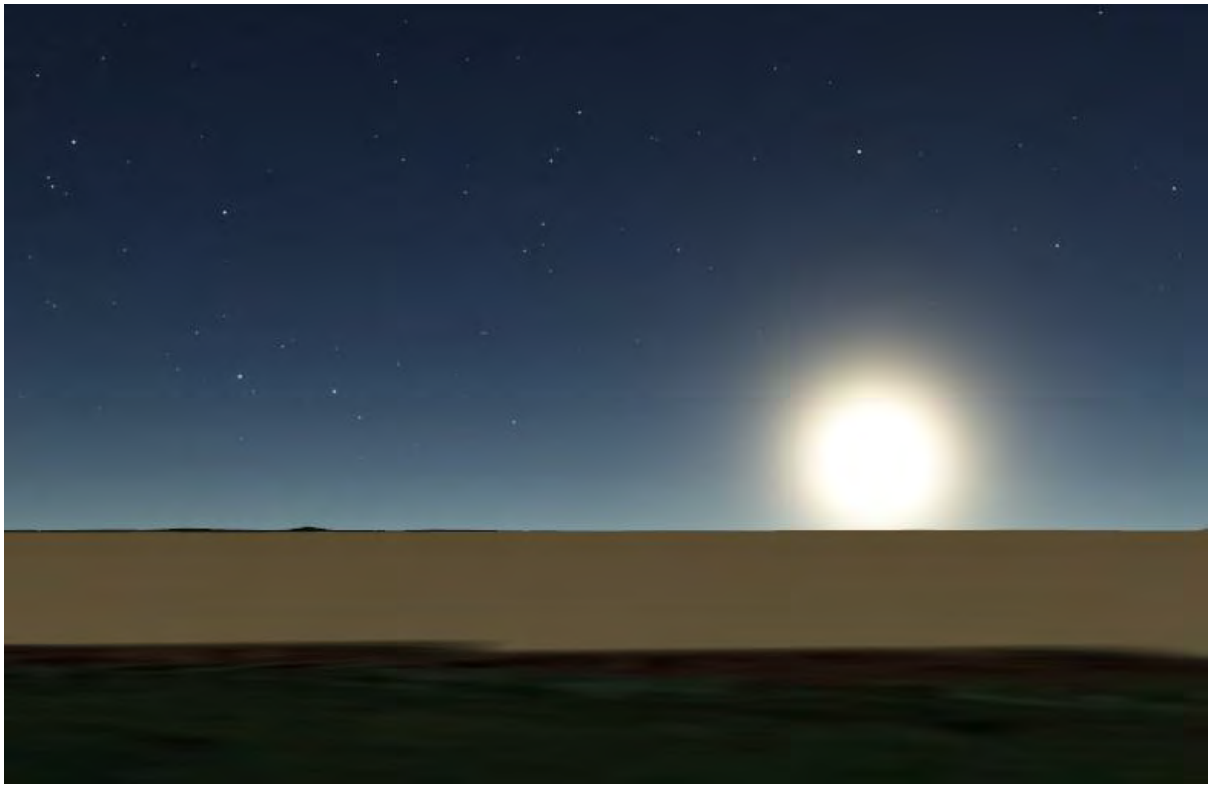
Receptor 88

Looking West

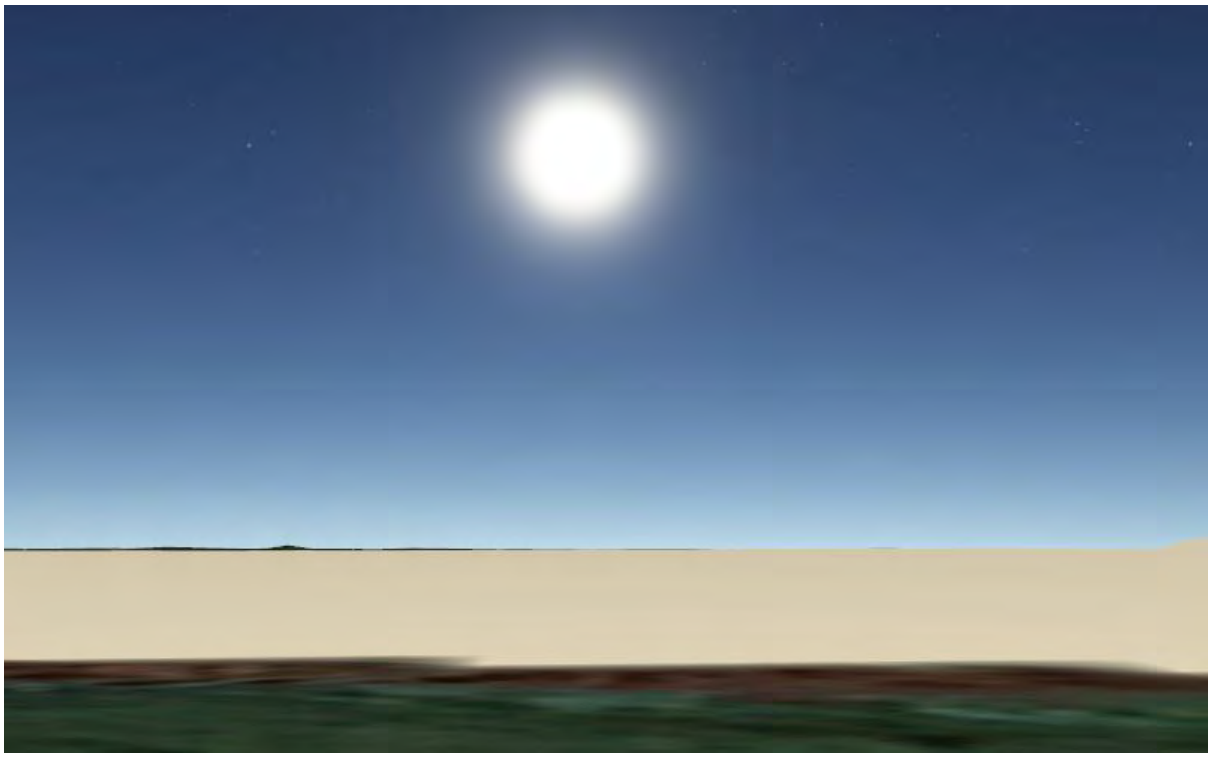


Looking East

April 1st 06:00 UTC

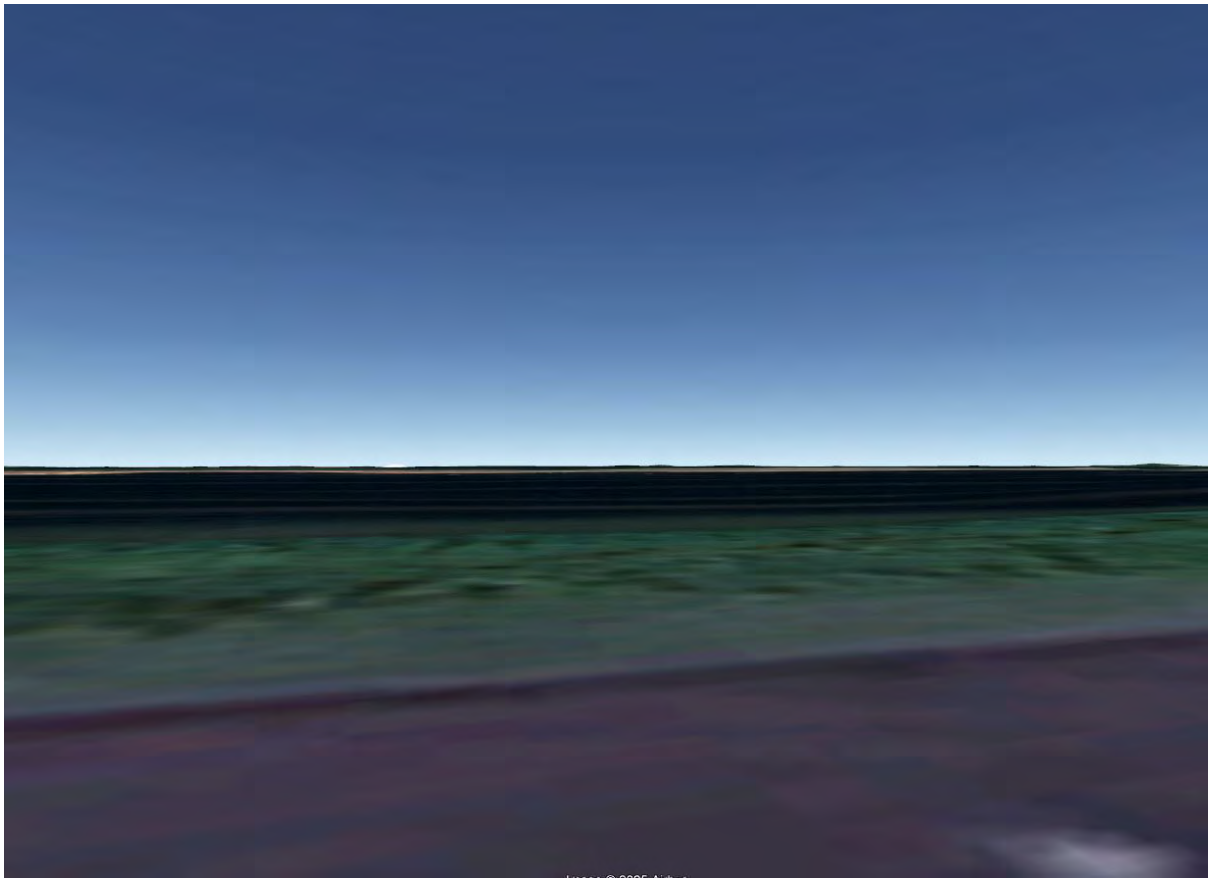


July 1st 06:00 UTC



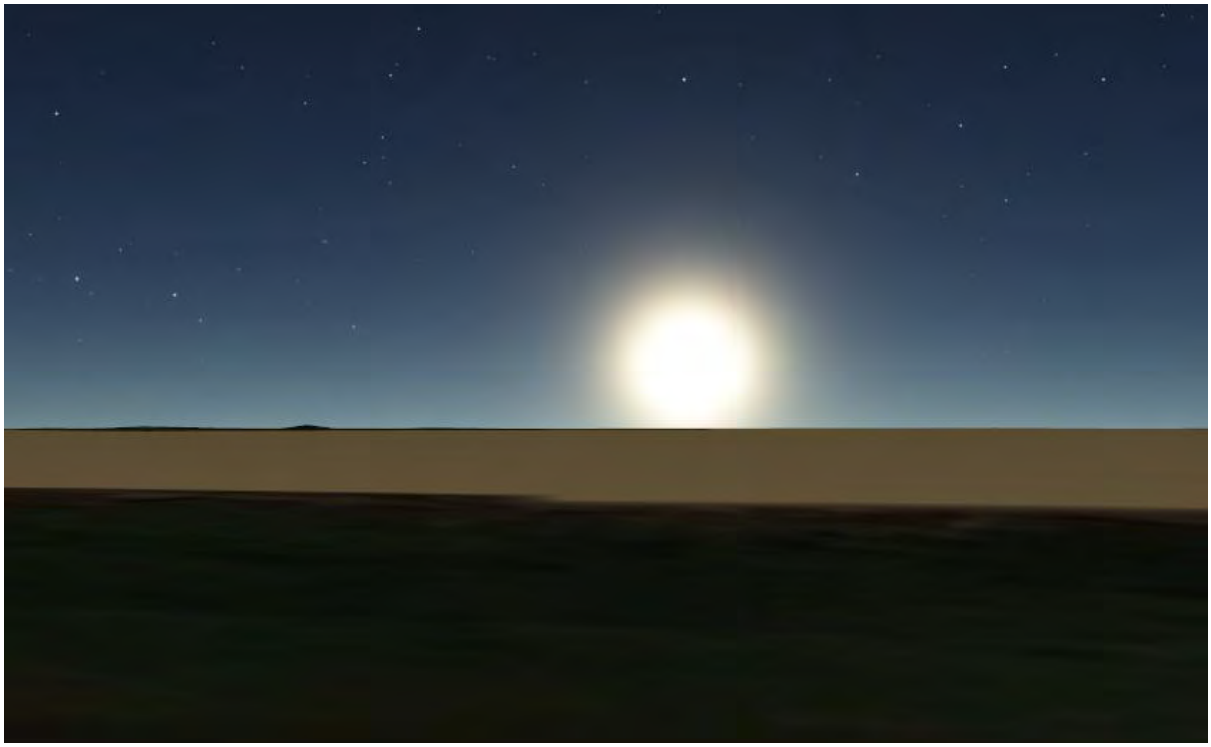
Receptor 89

Looking West

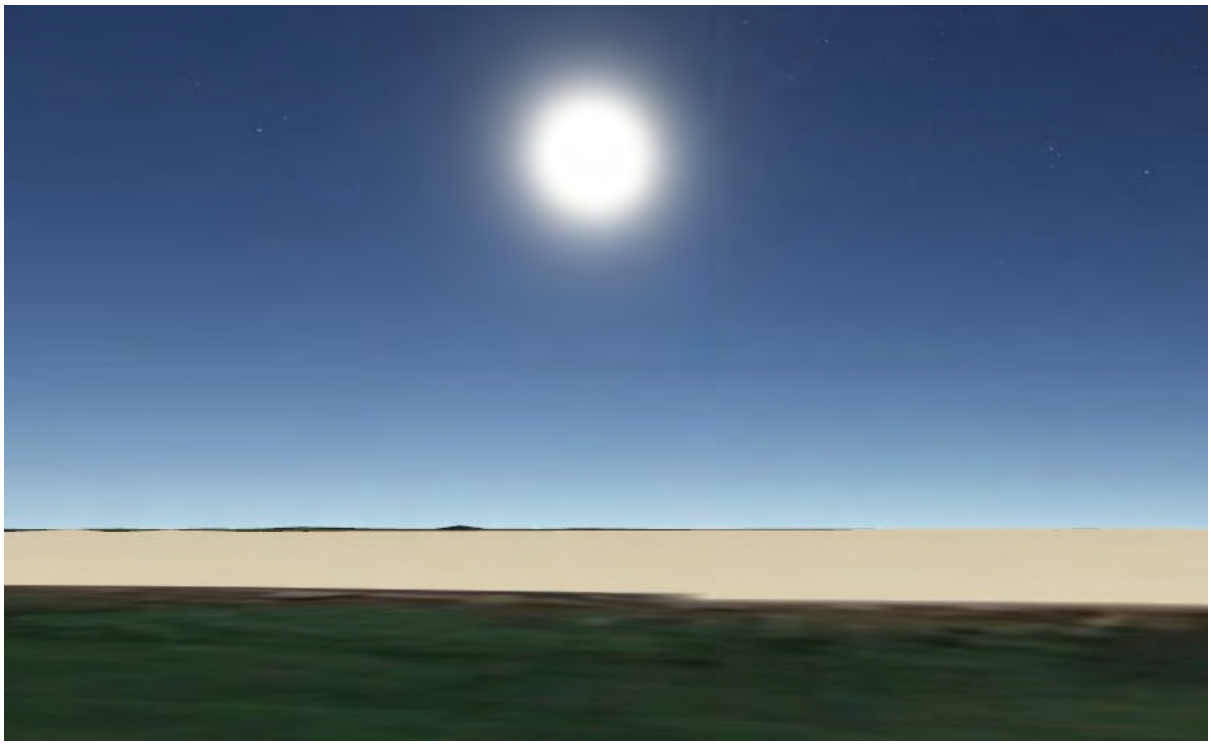


Looking East

April 1st 06:00 UTC

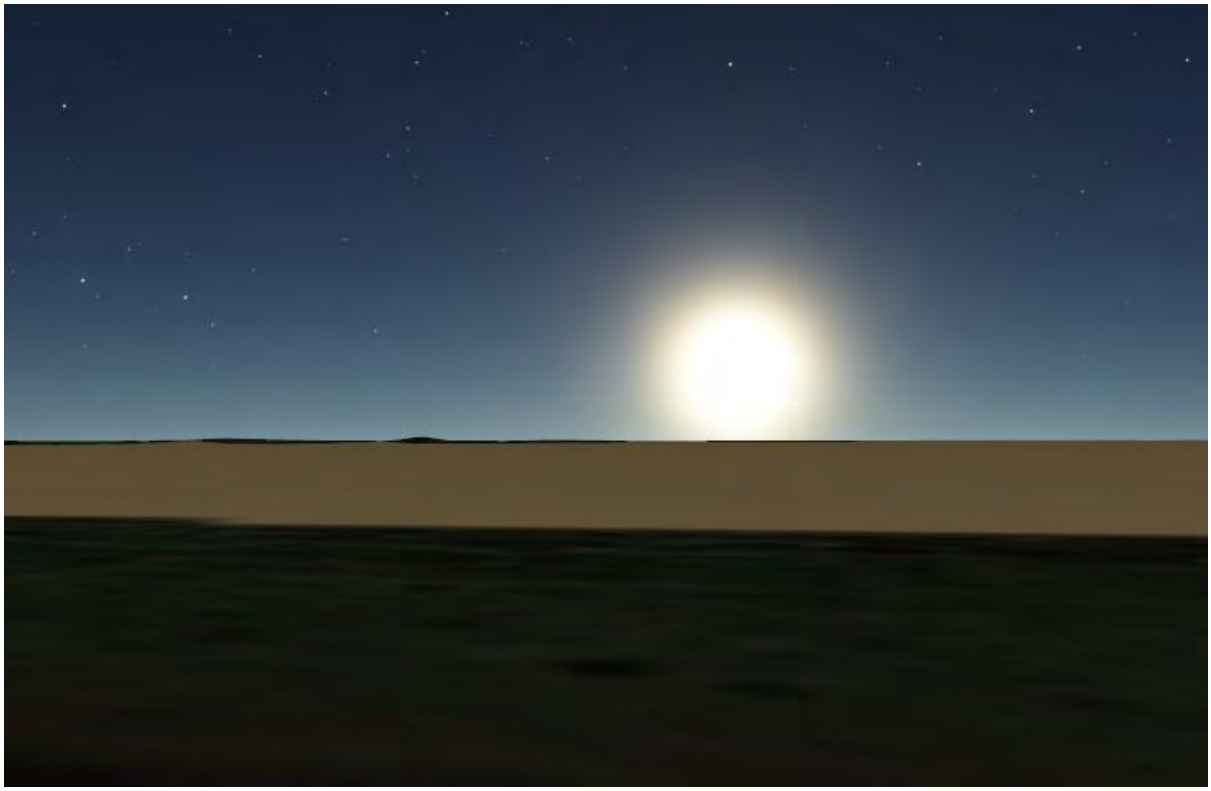


July 1st 06:00 UTC



Receptor 90

April 1st 06:00 UTC



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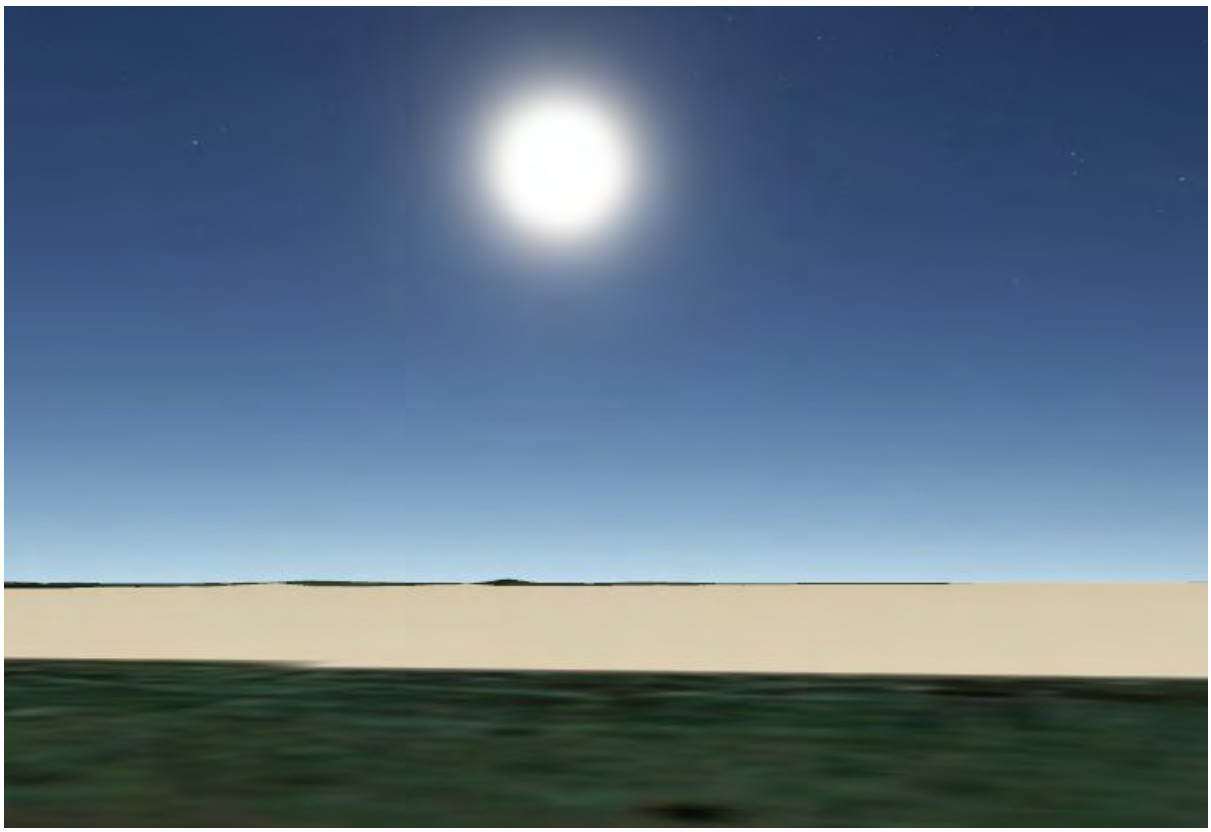

Receptor 91

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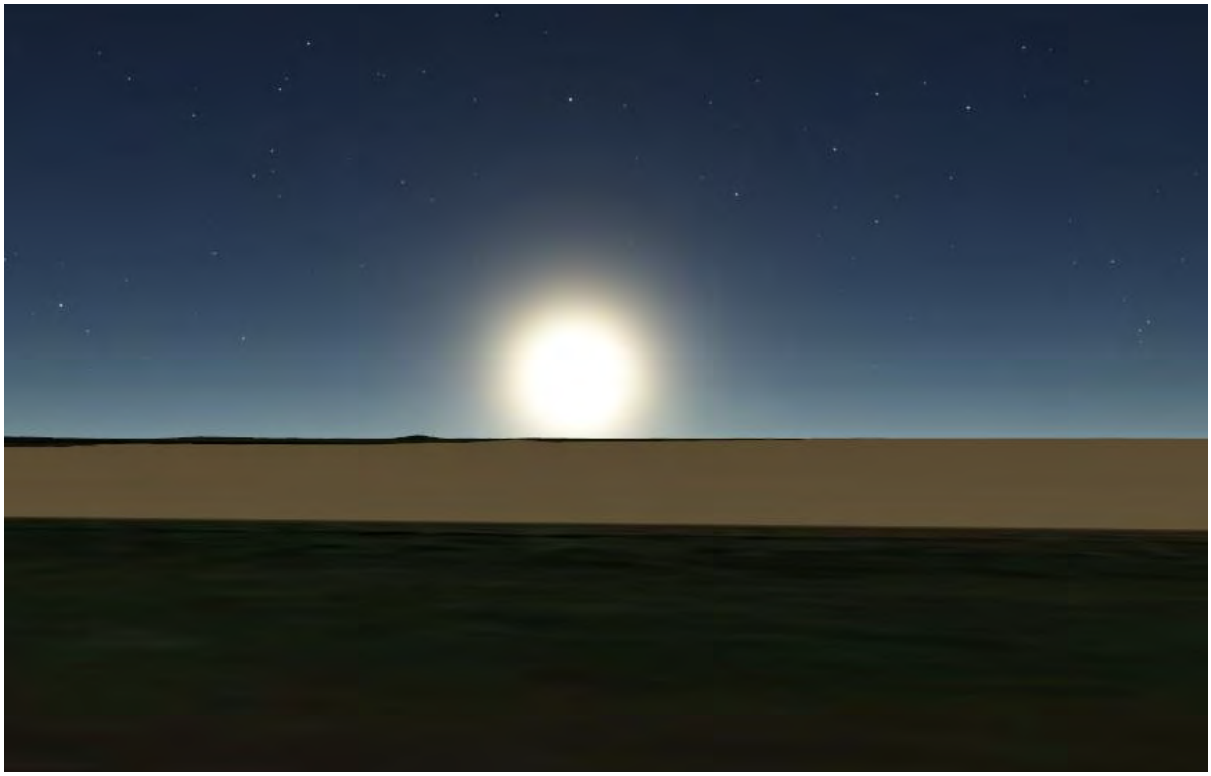
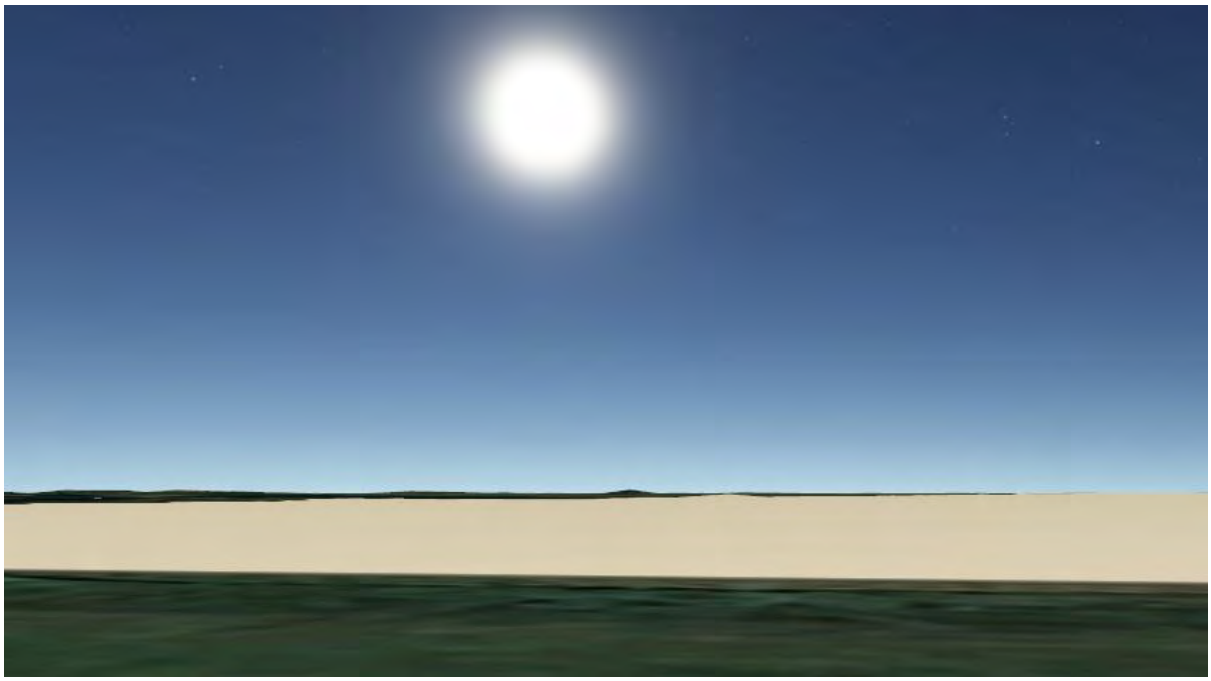
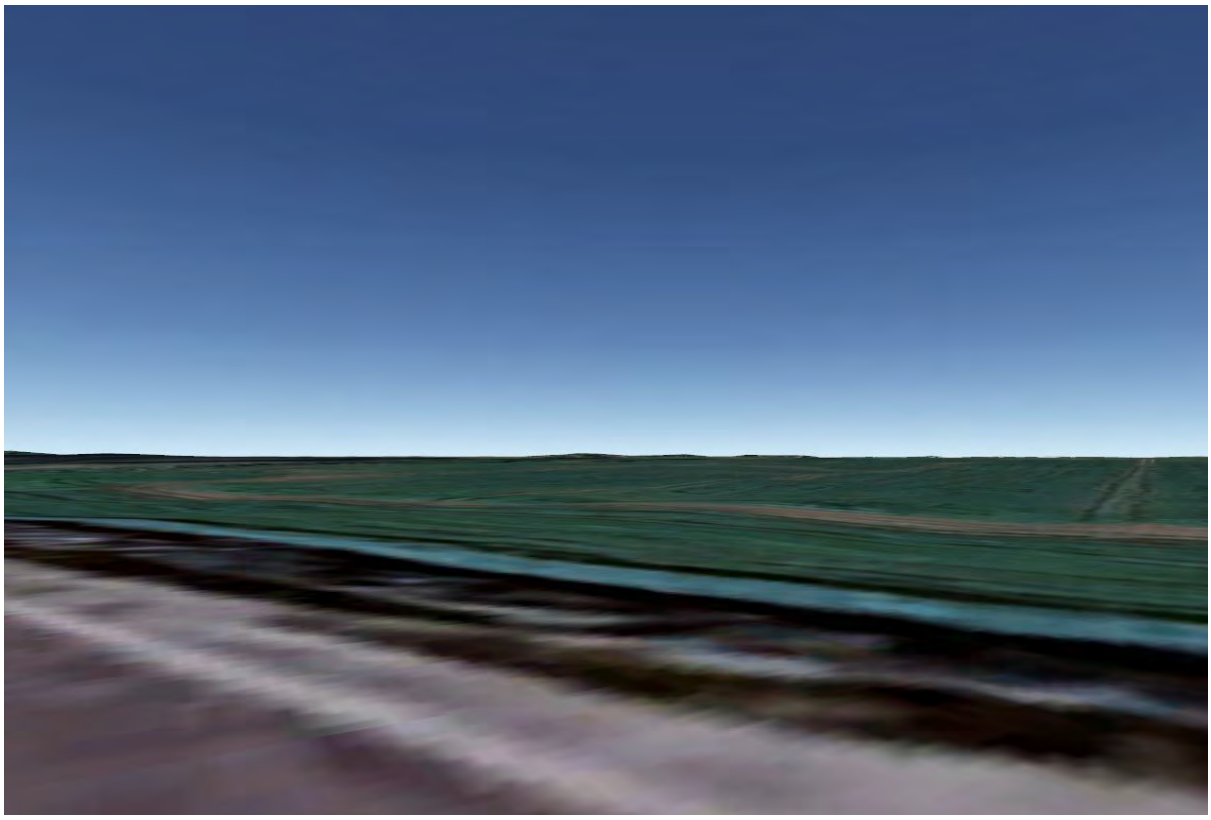


July 1st 06:00 UTC

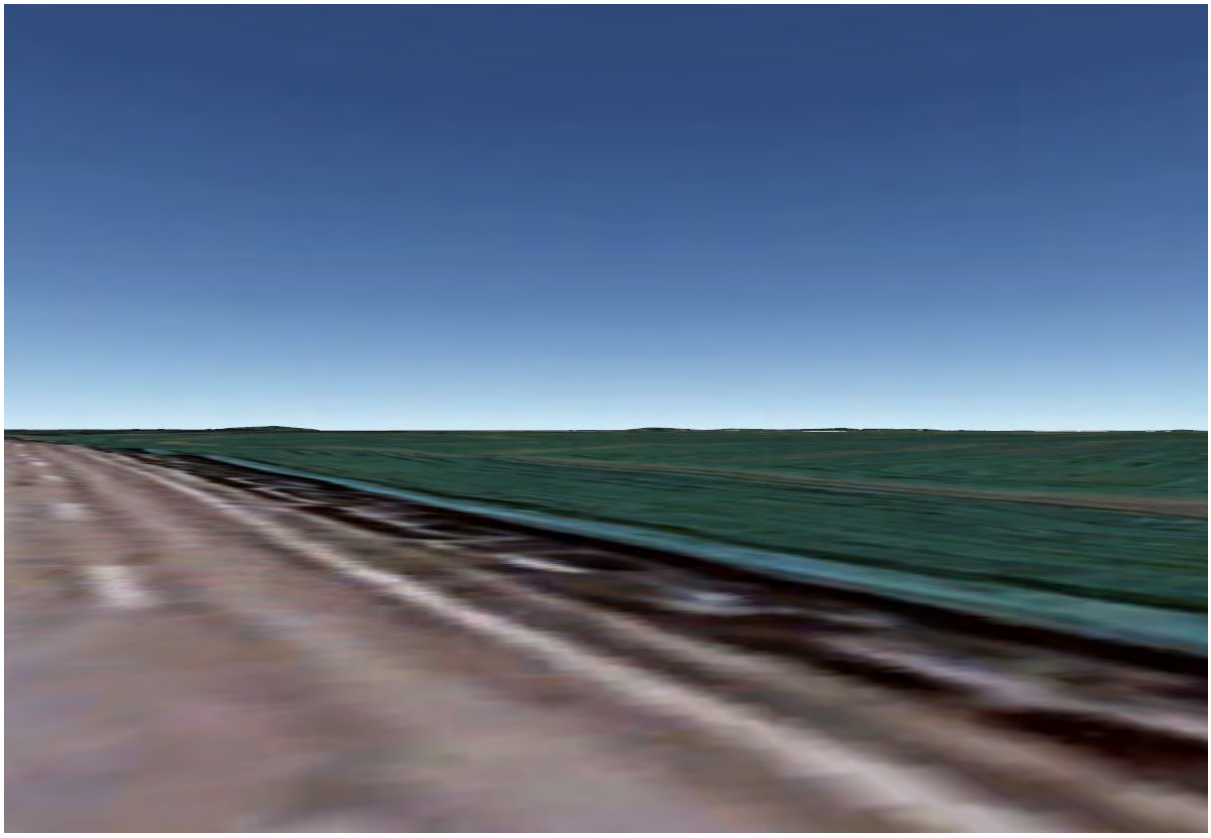


Receptor 97

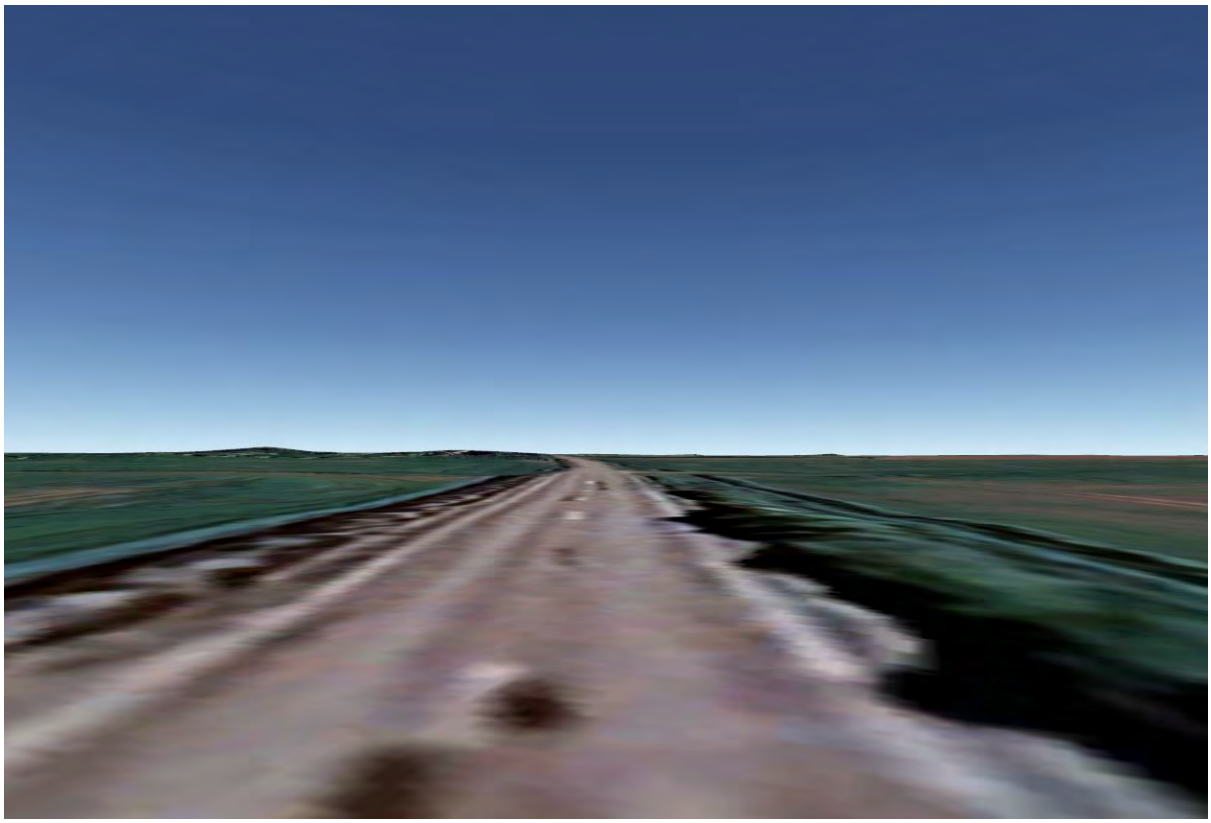


Receptor 98

Looking West

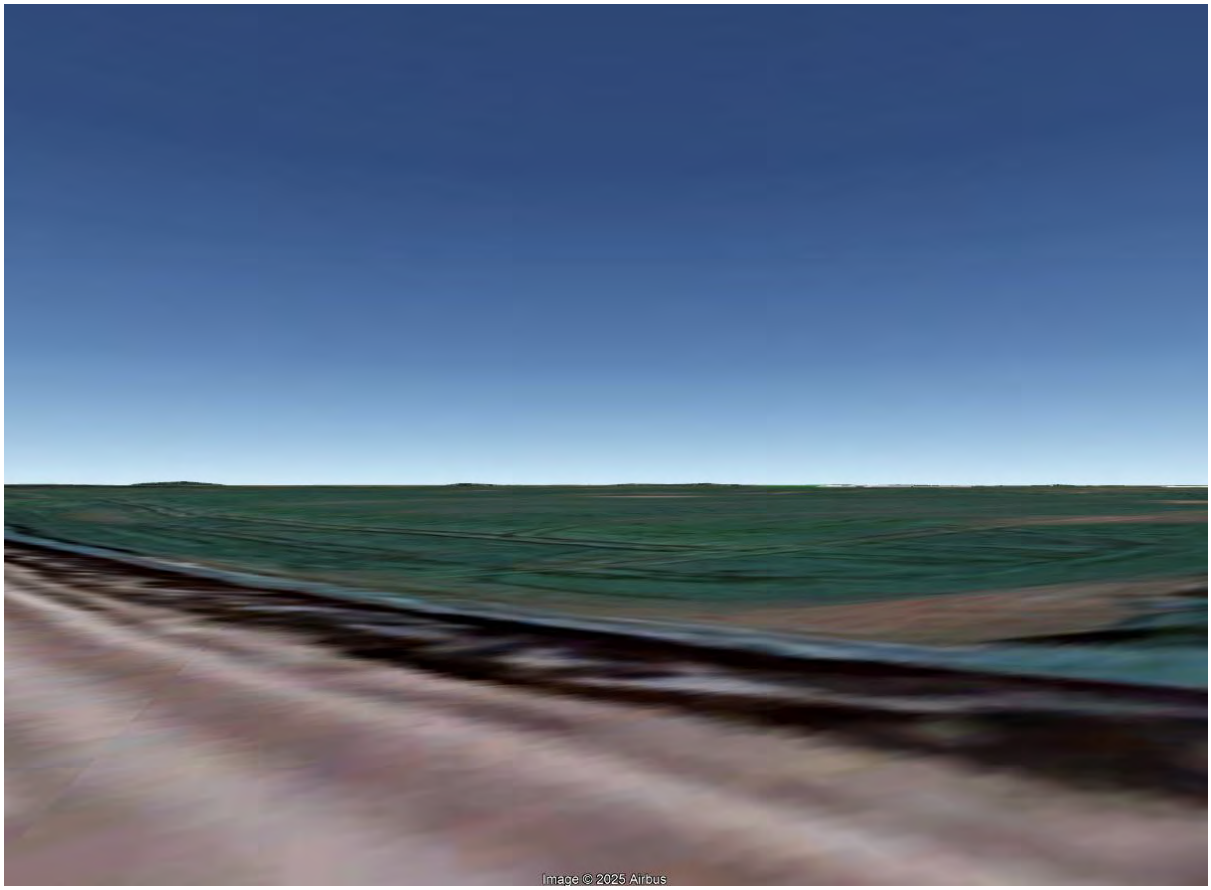


Looking East



Receptor 99

Looking West



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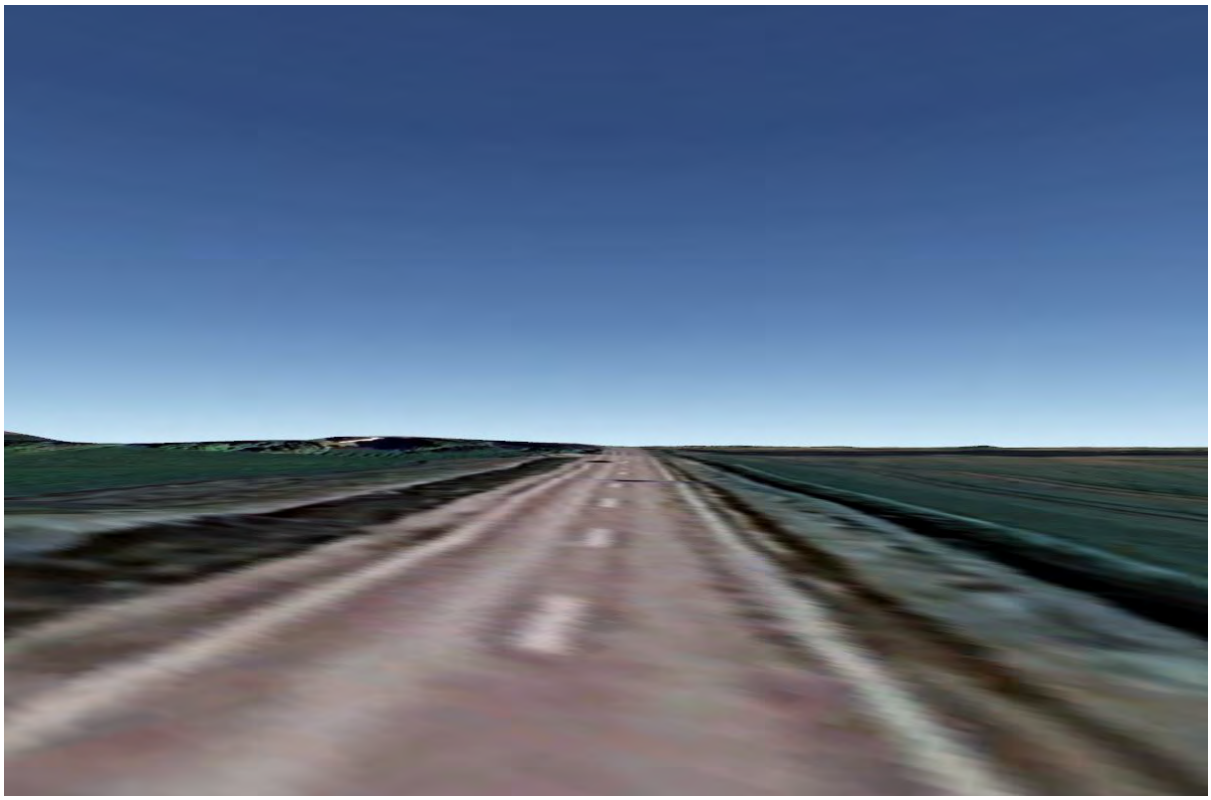
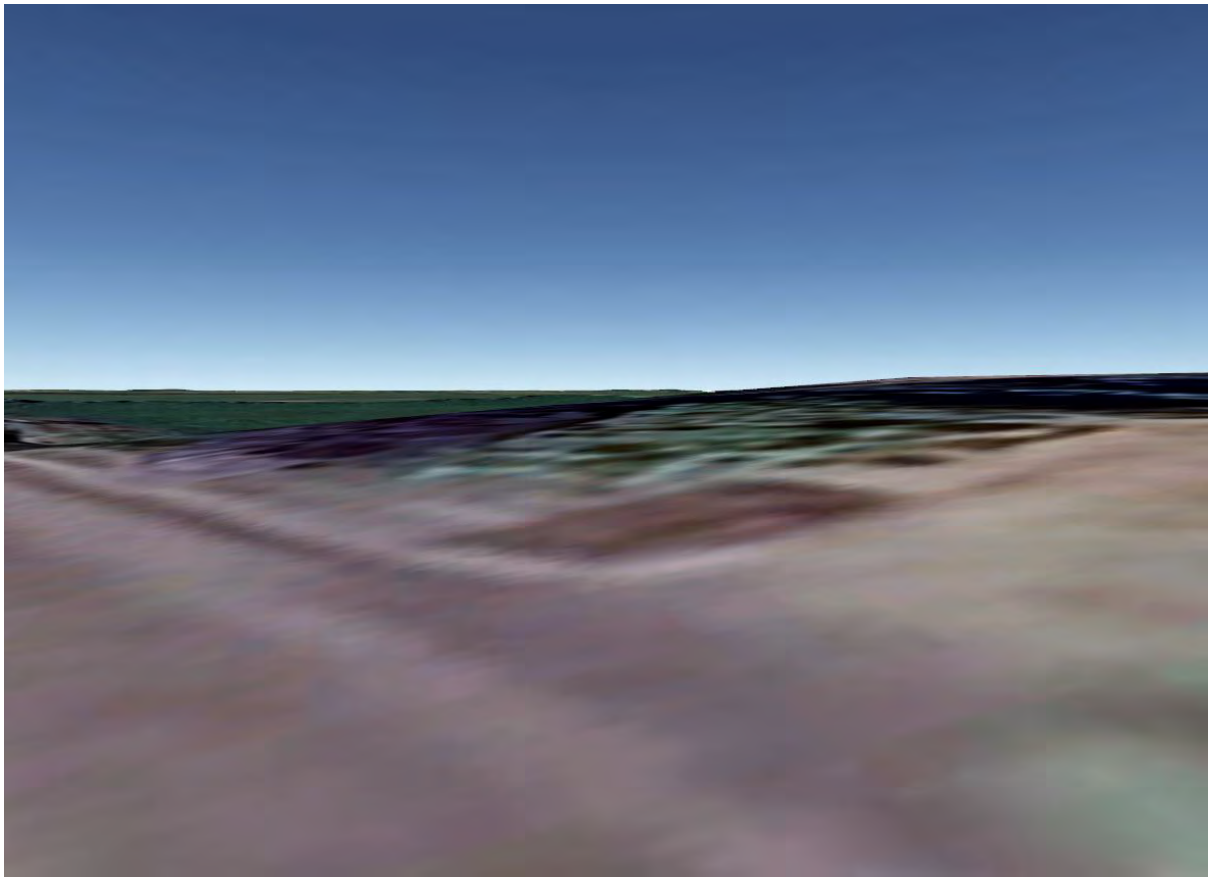


Receptor 100

Looking West



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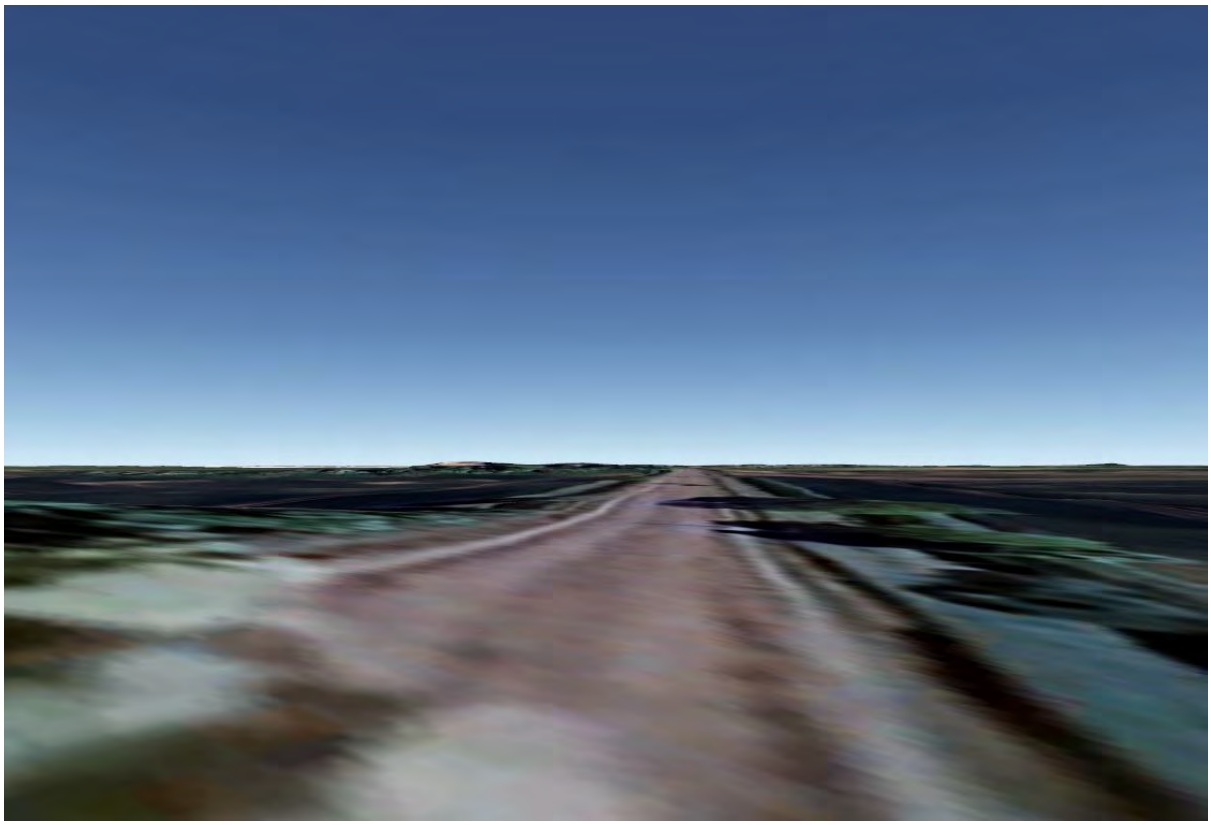
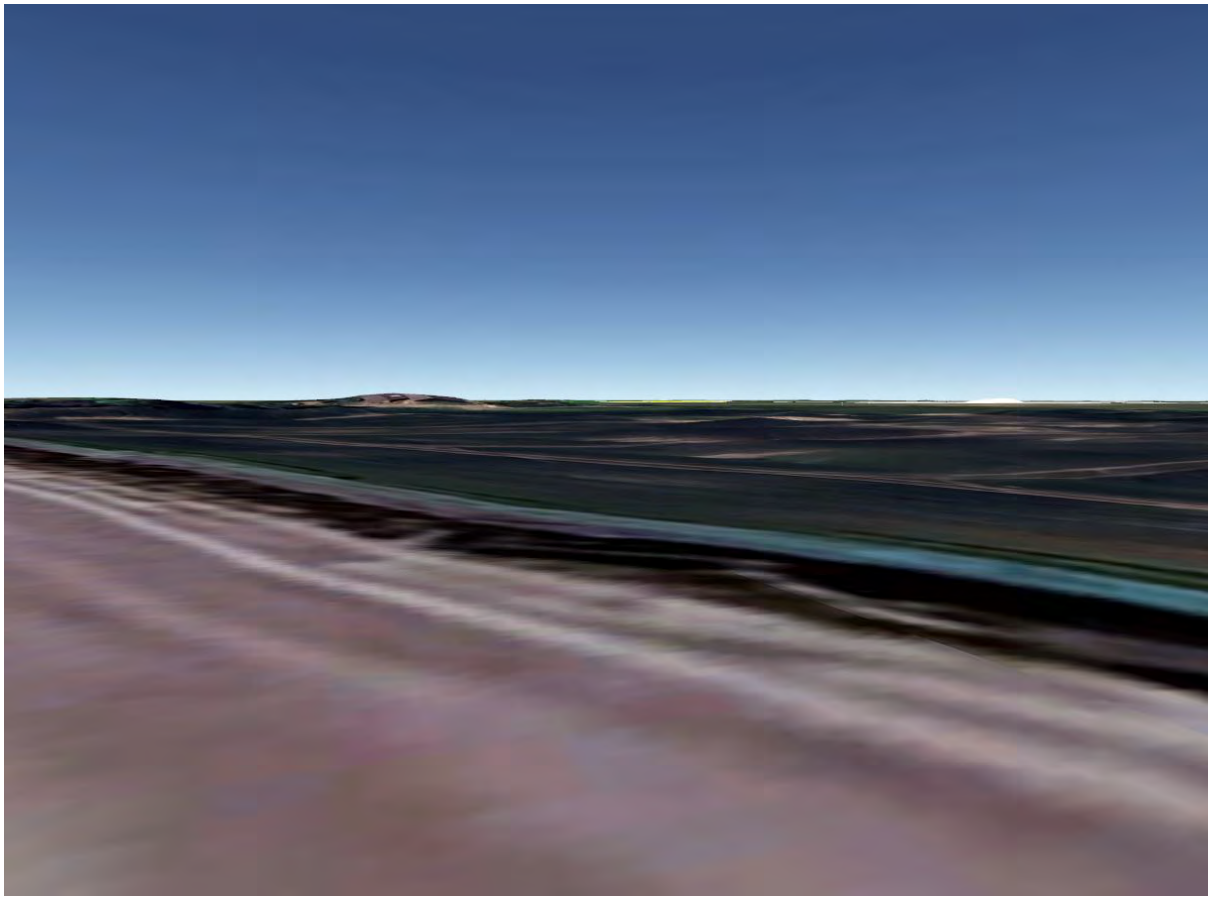
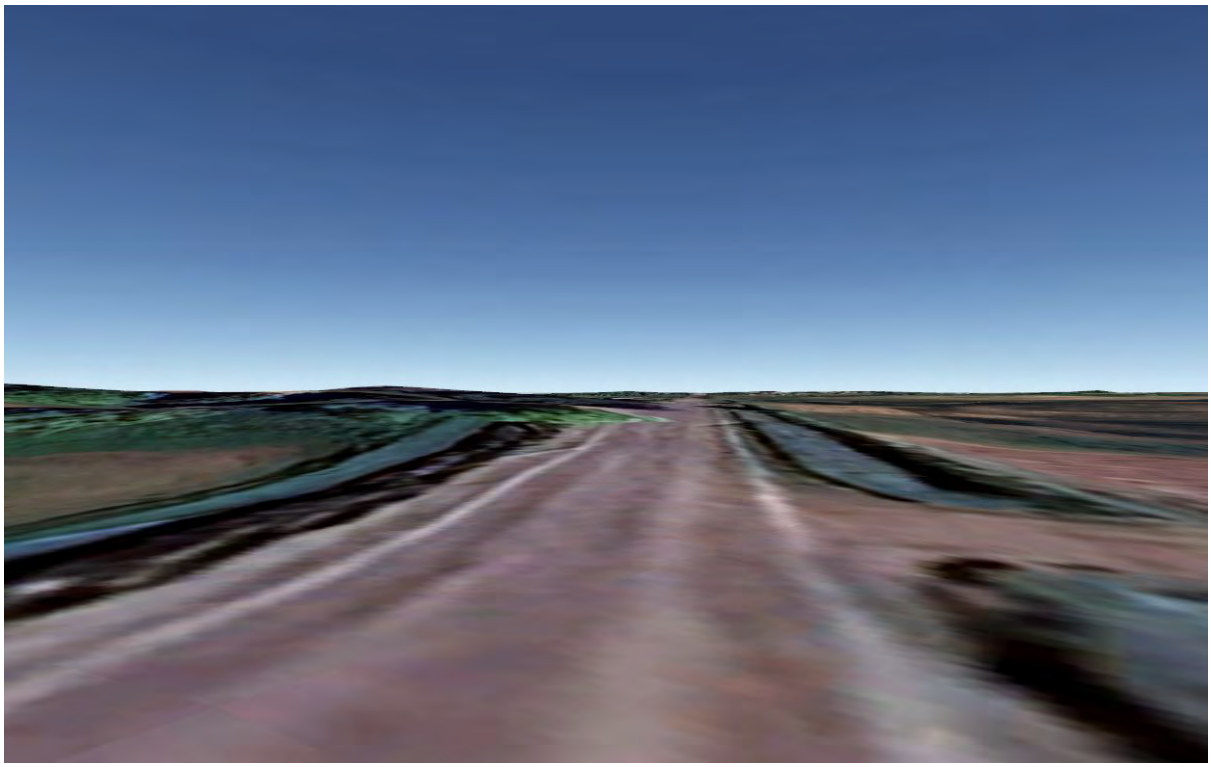


Receptor 101

Looking West

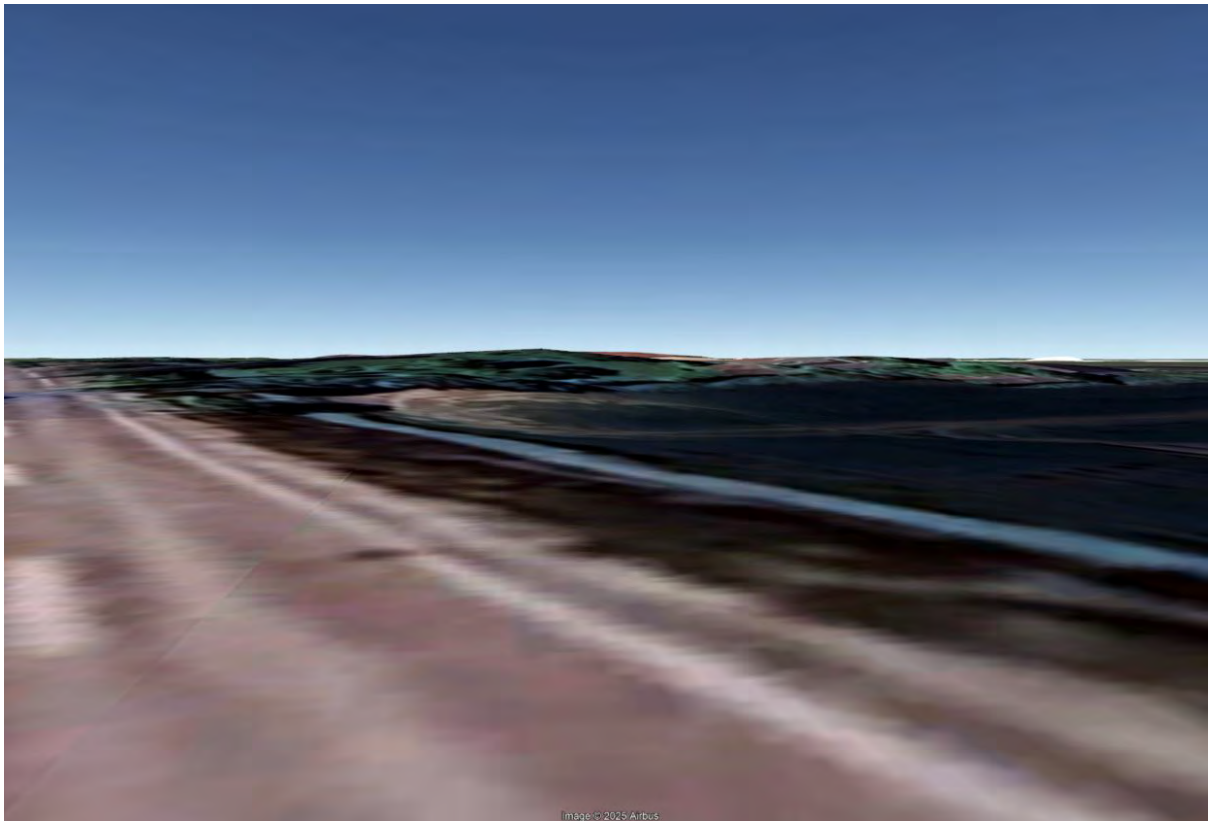


Looking East



Receptor 102

Looking West



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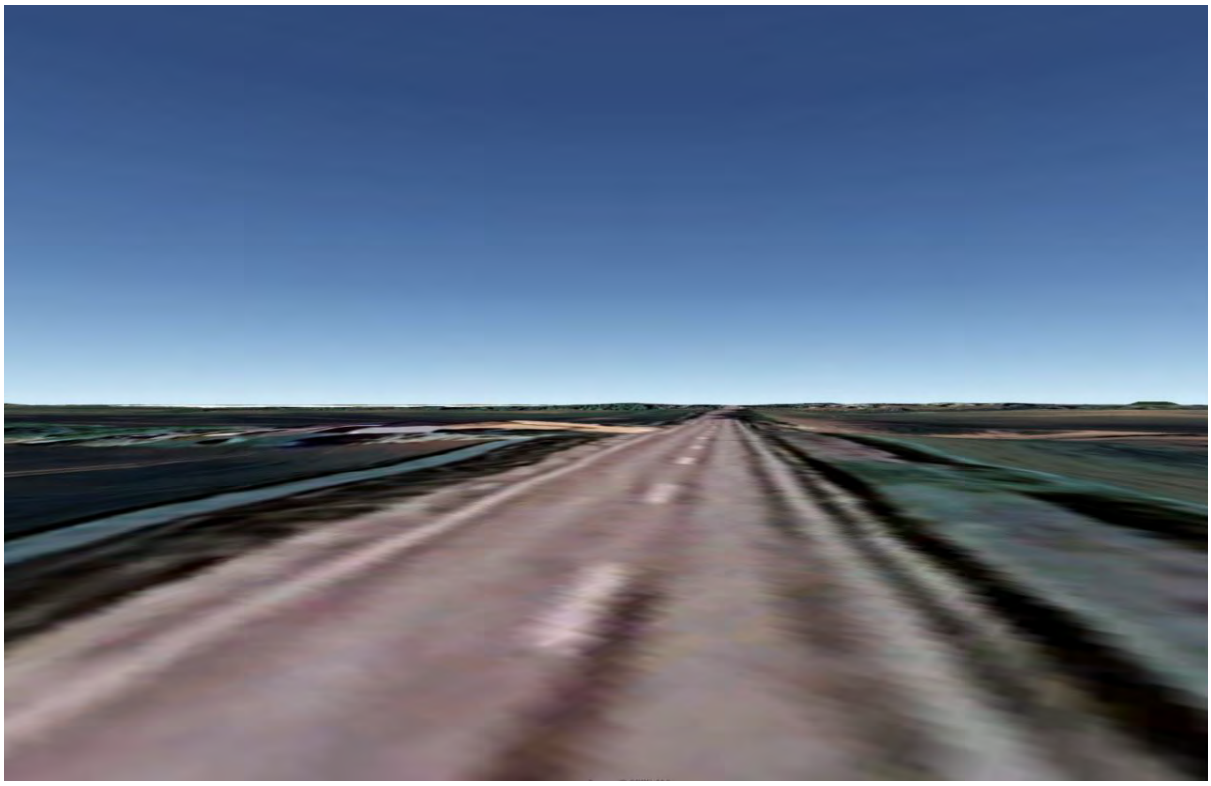
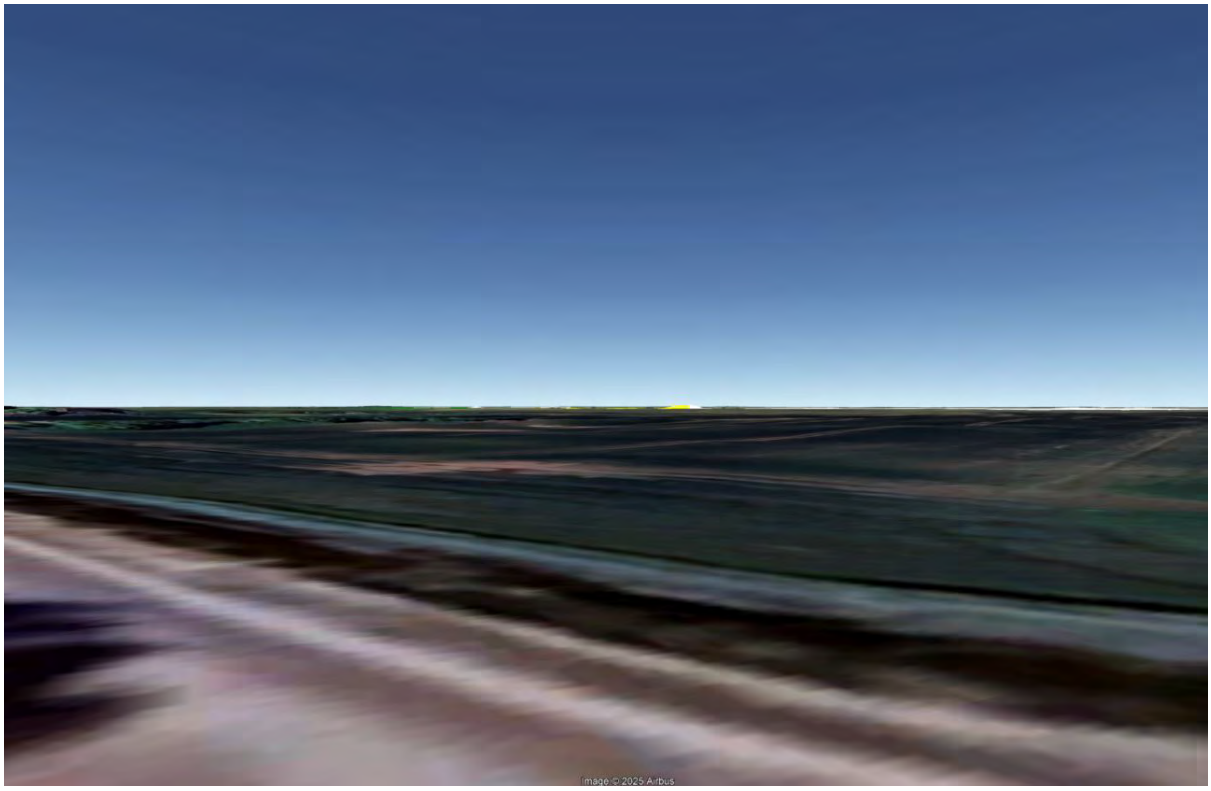
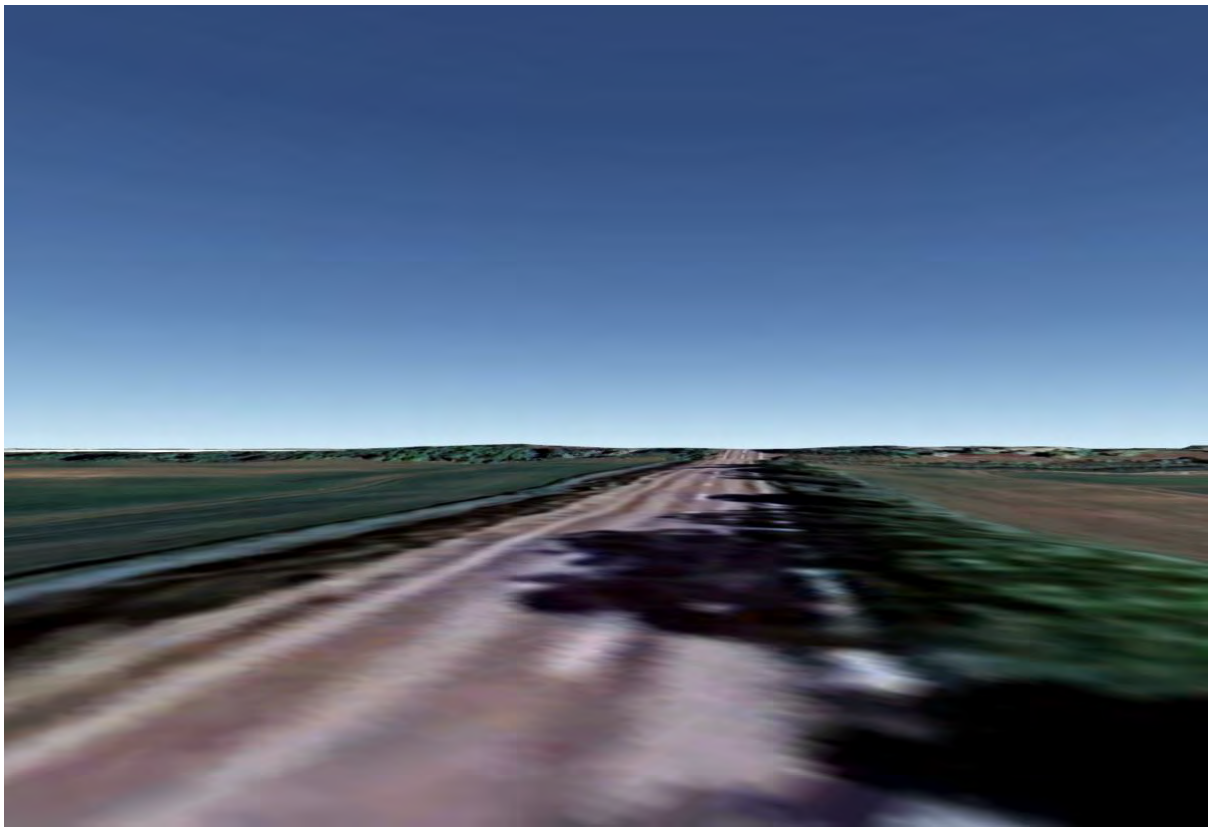


Receptor 103

Looking West

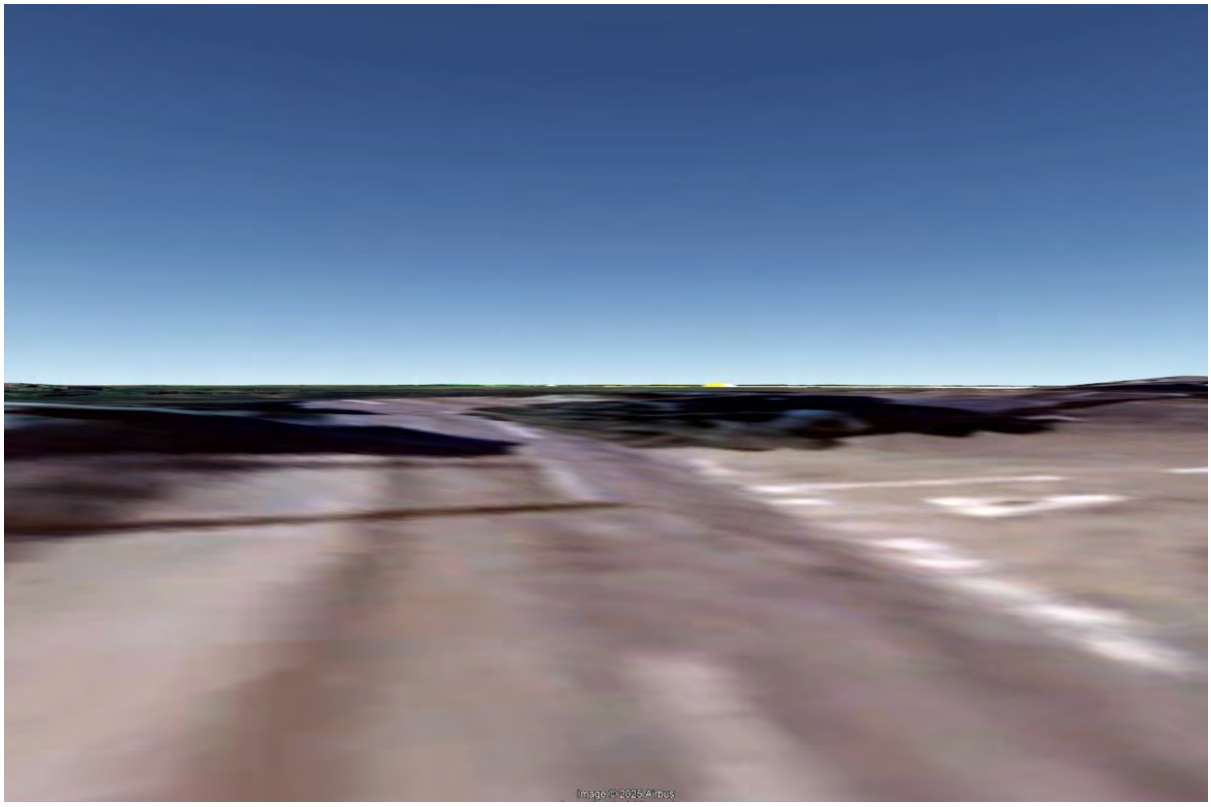


Looking East

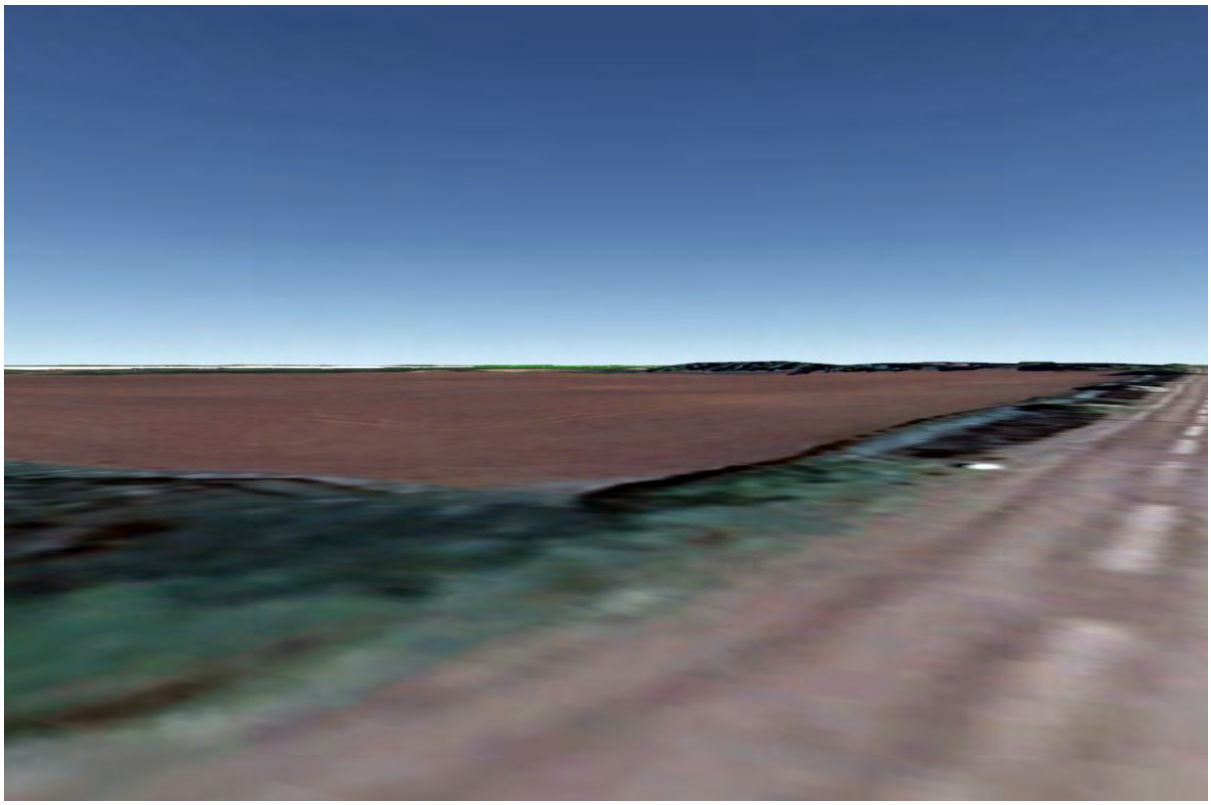


Receptor 104

Looking West

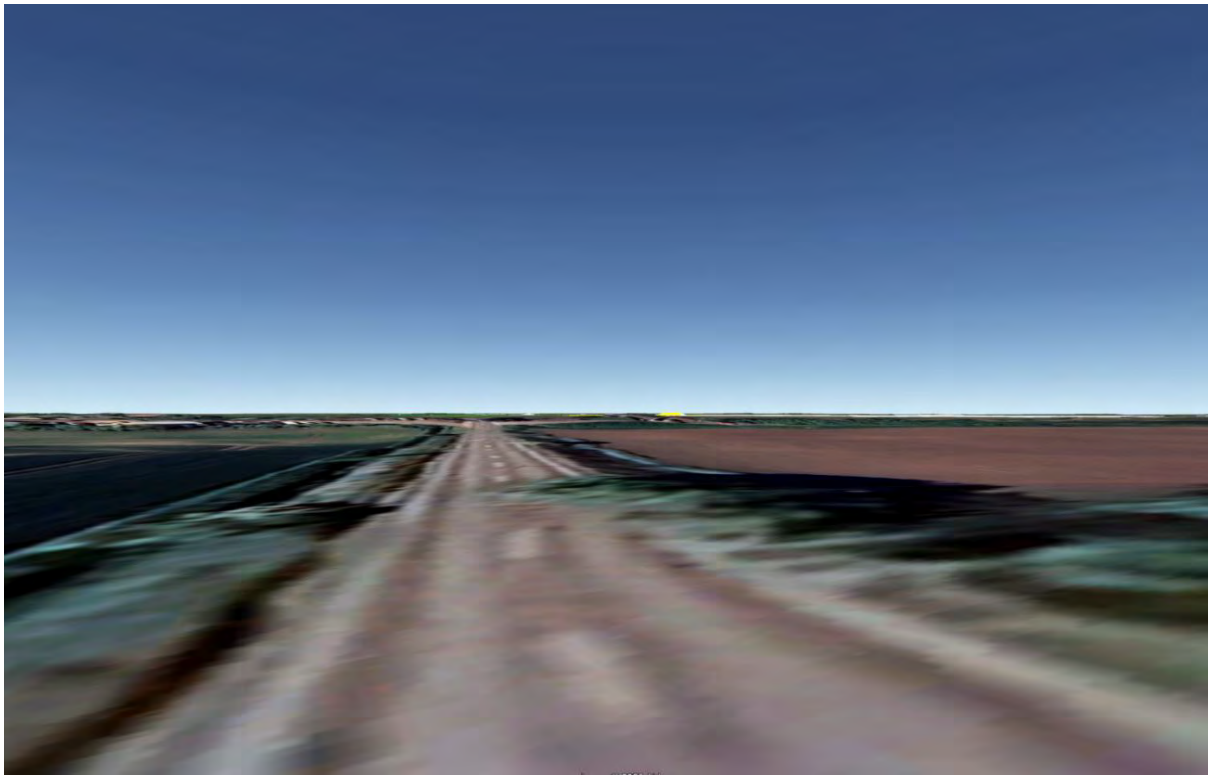


Looking East

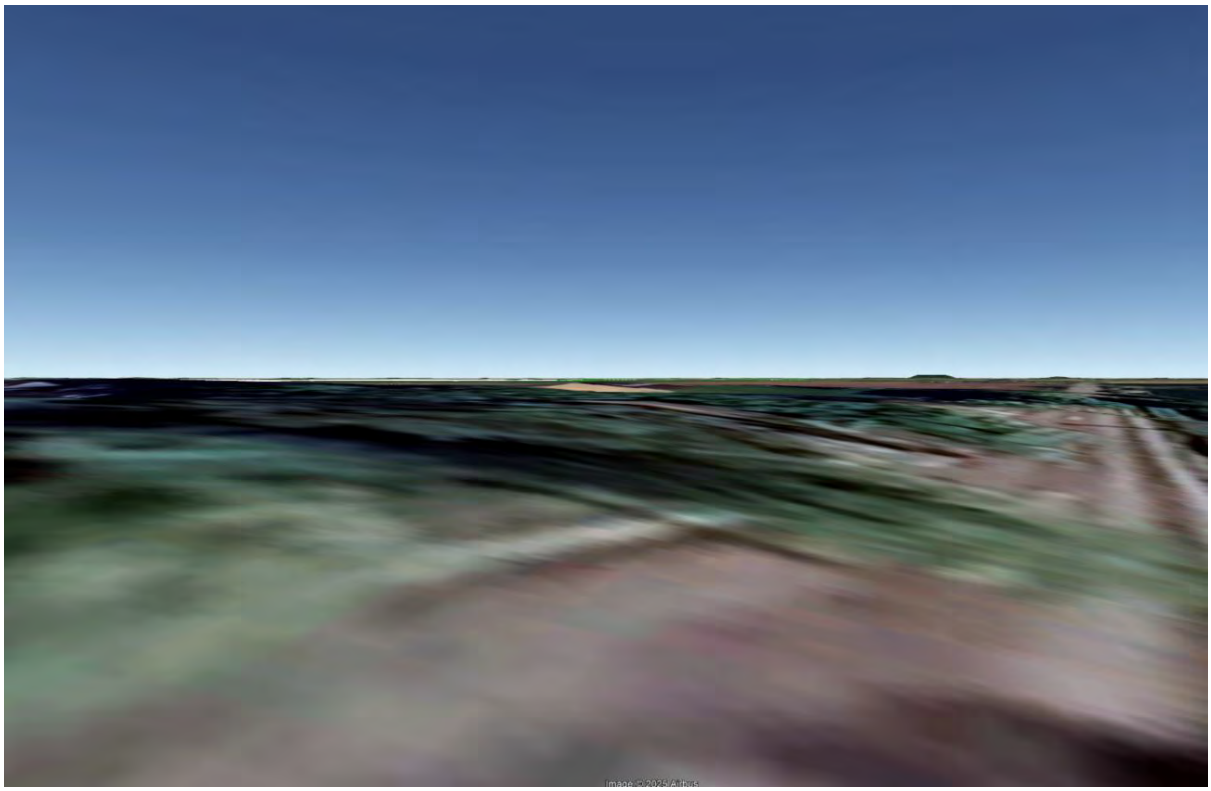


Receptor 105

Looking West

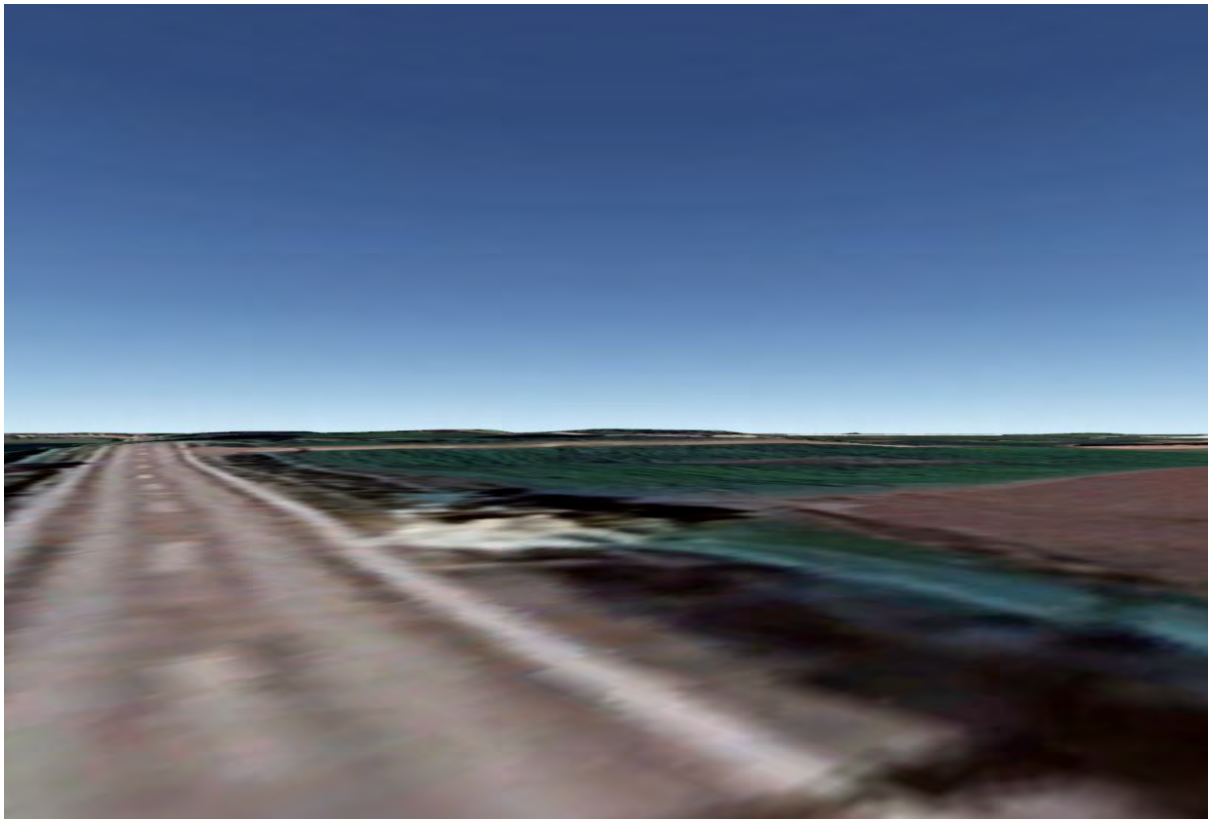


Looking East

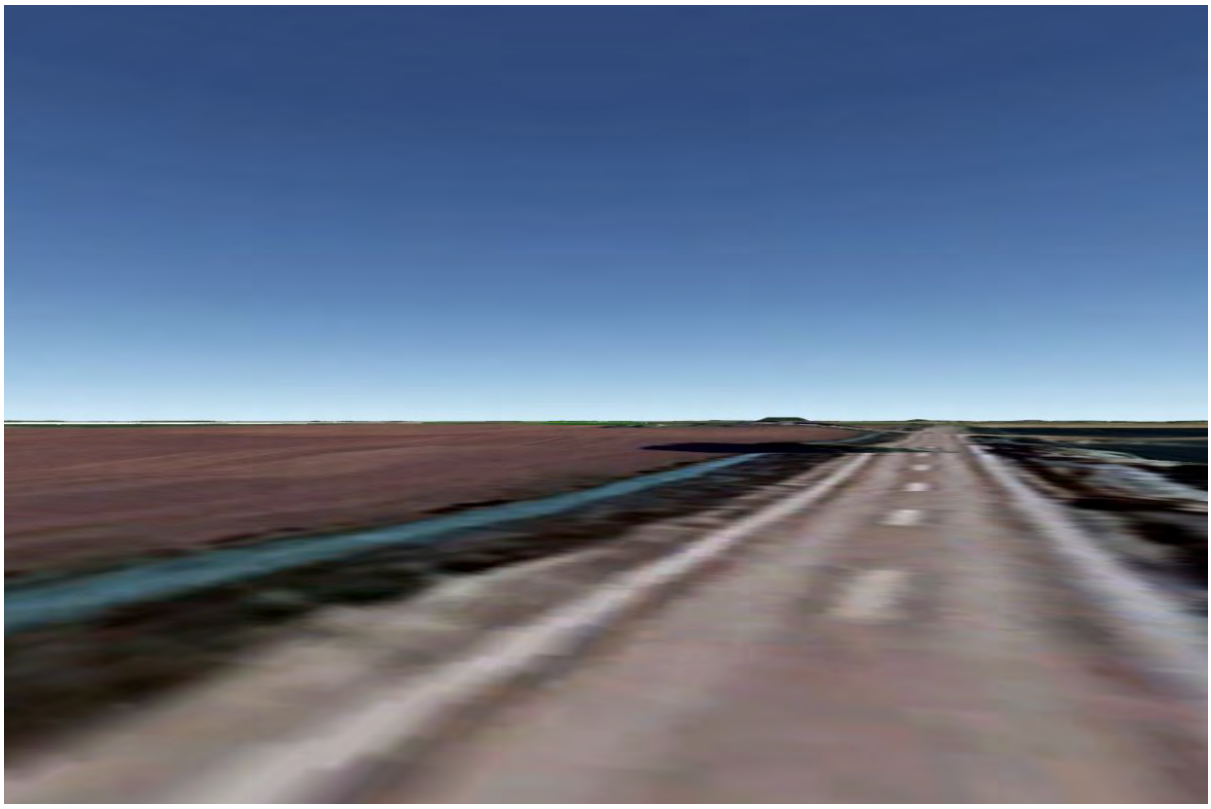


Receptor 106

Looking West

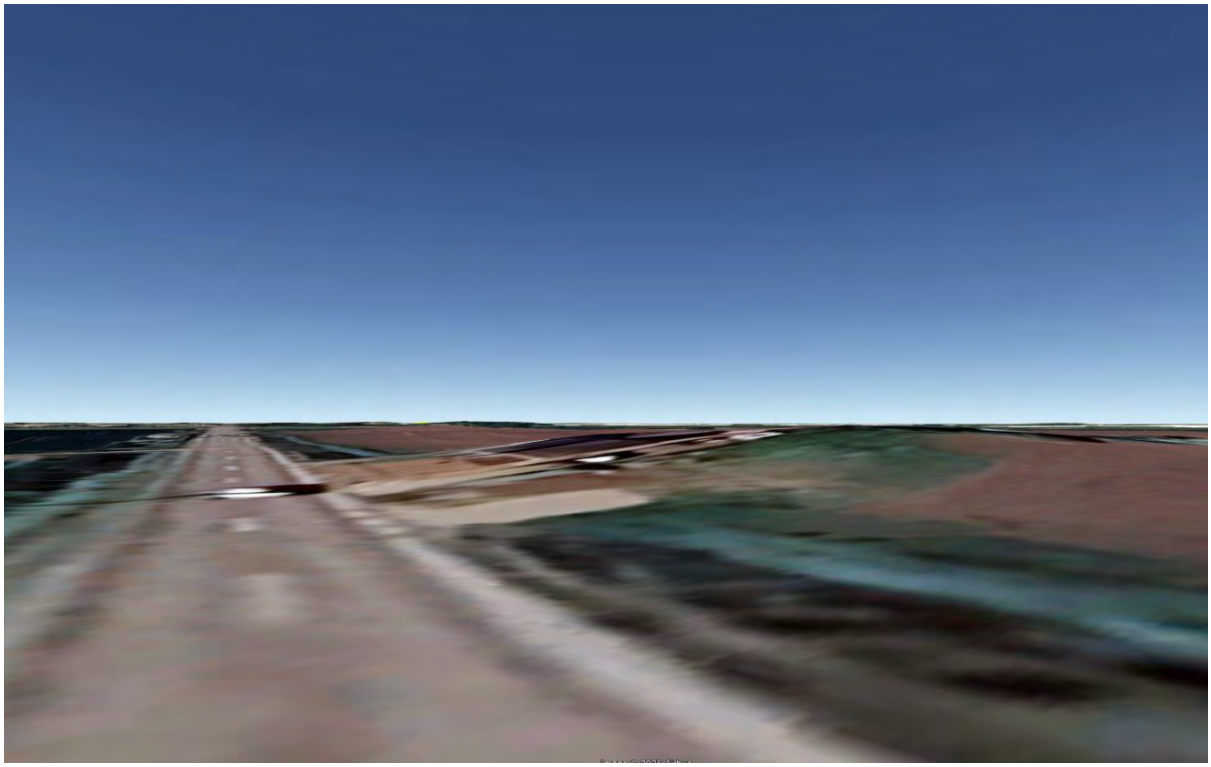


Looking East

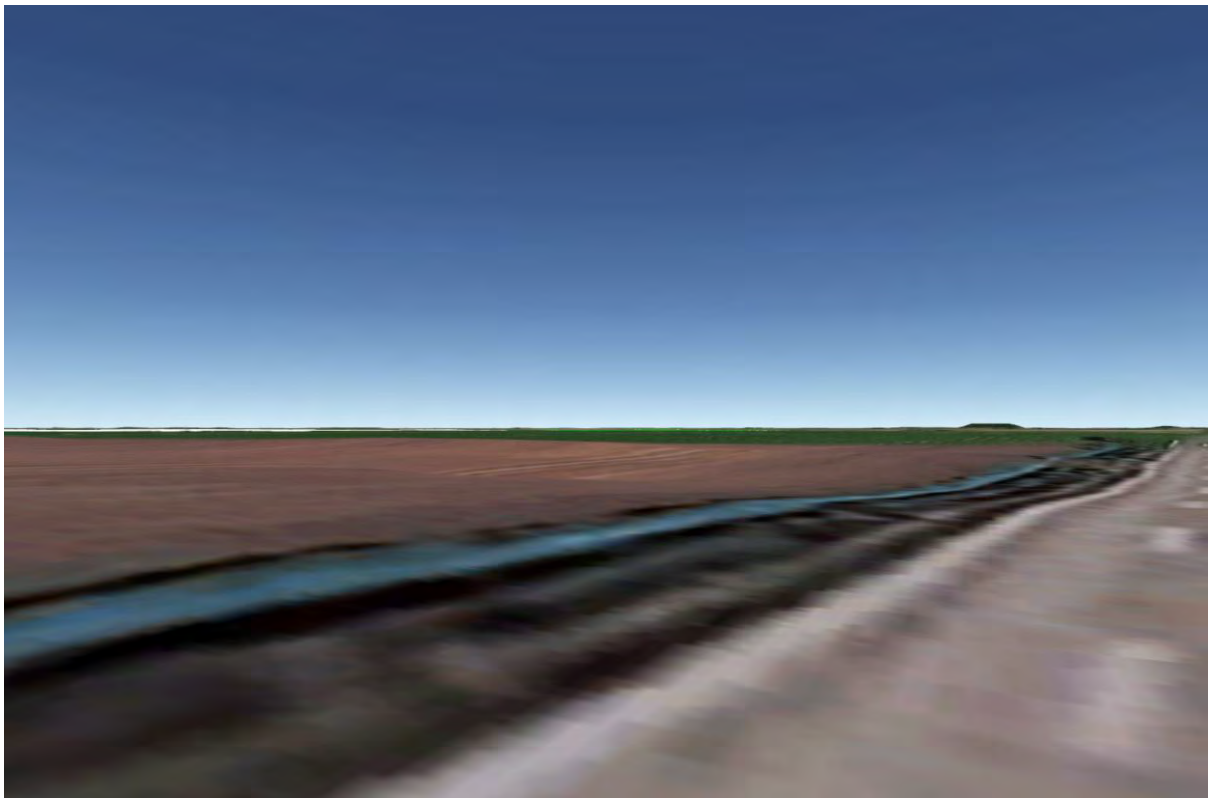


Receptor 107

Looking West

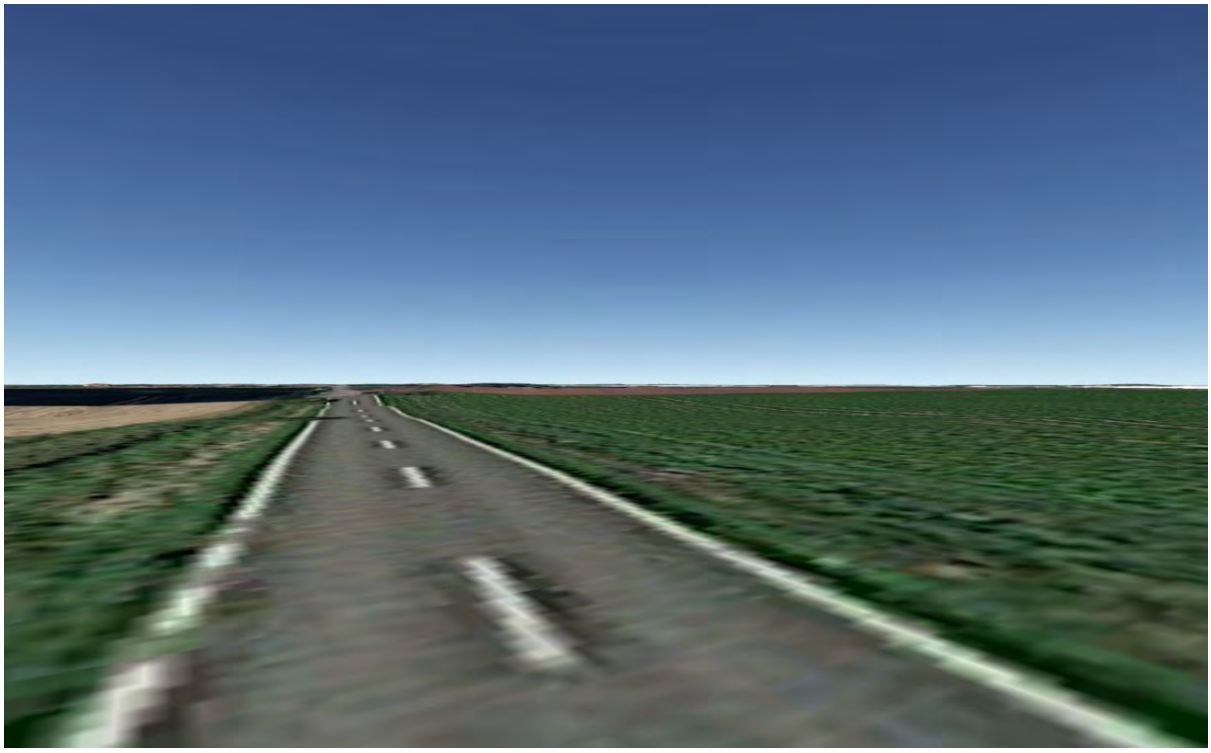


Looking East



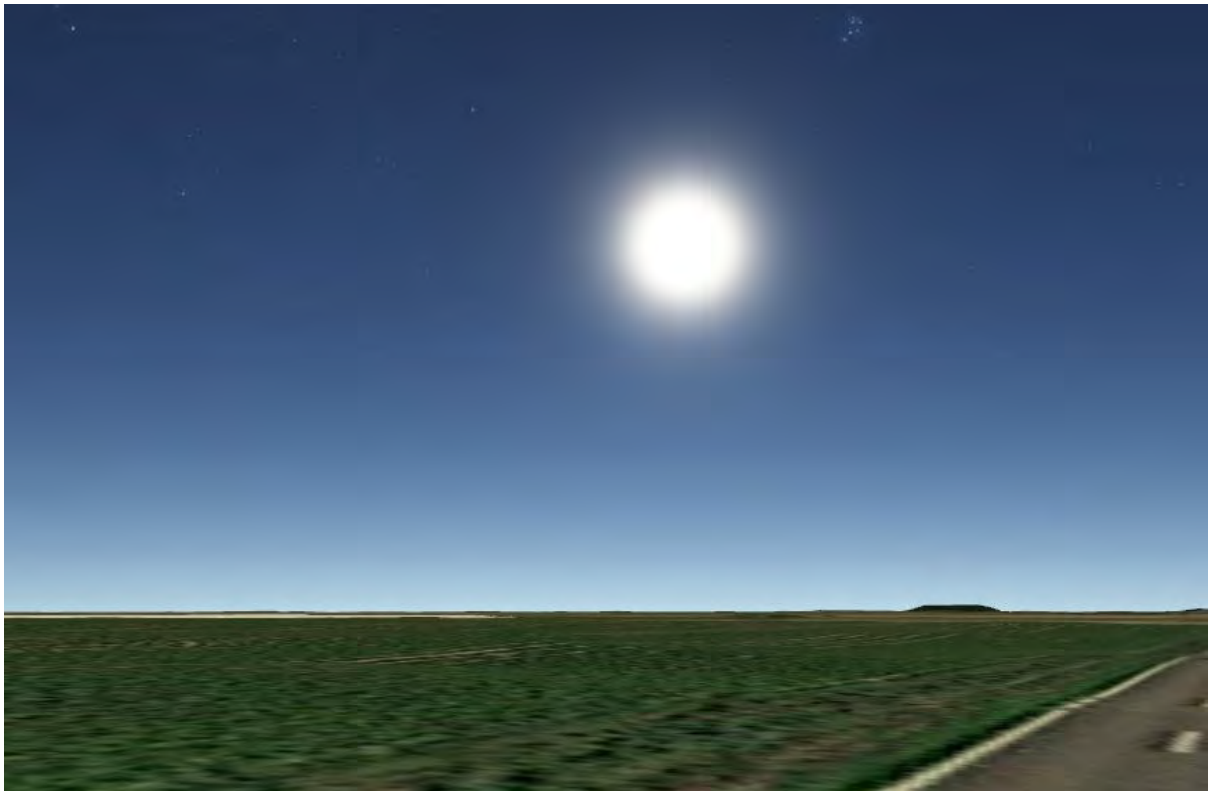
Receptor 108

Looking West

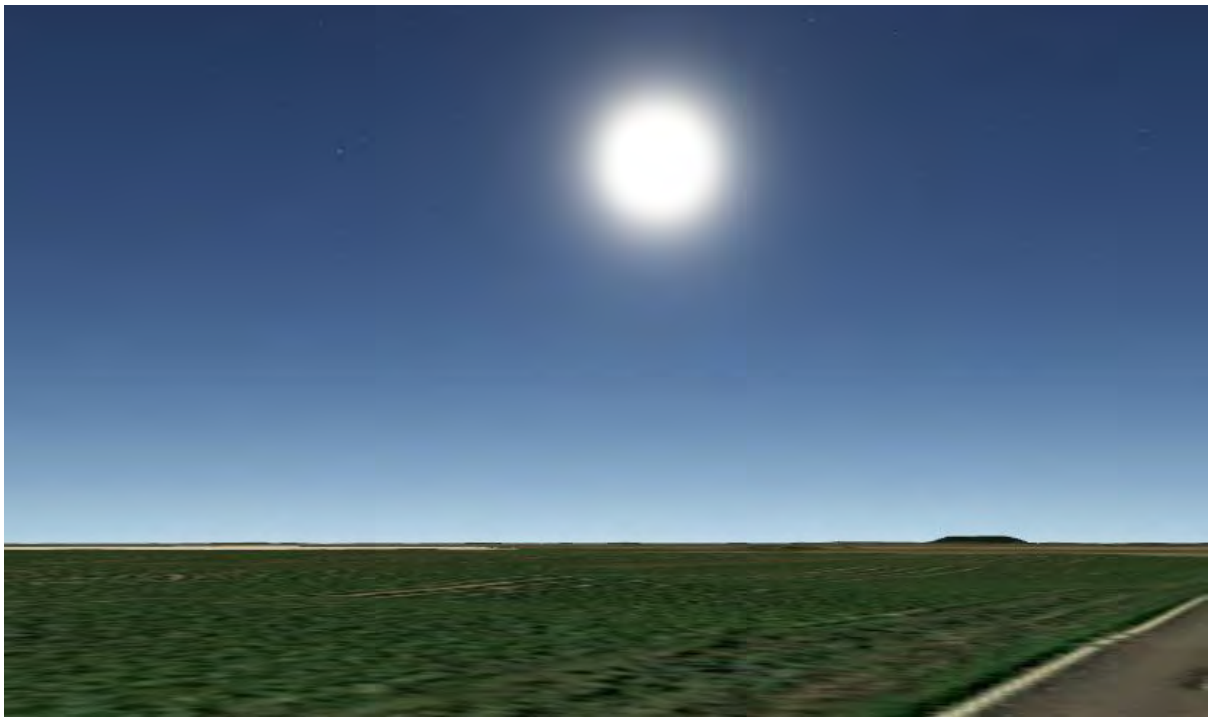


Looking East

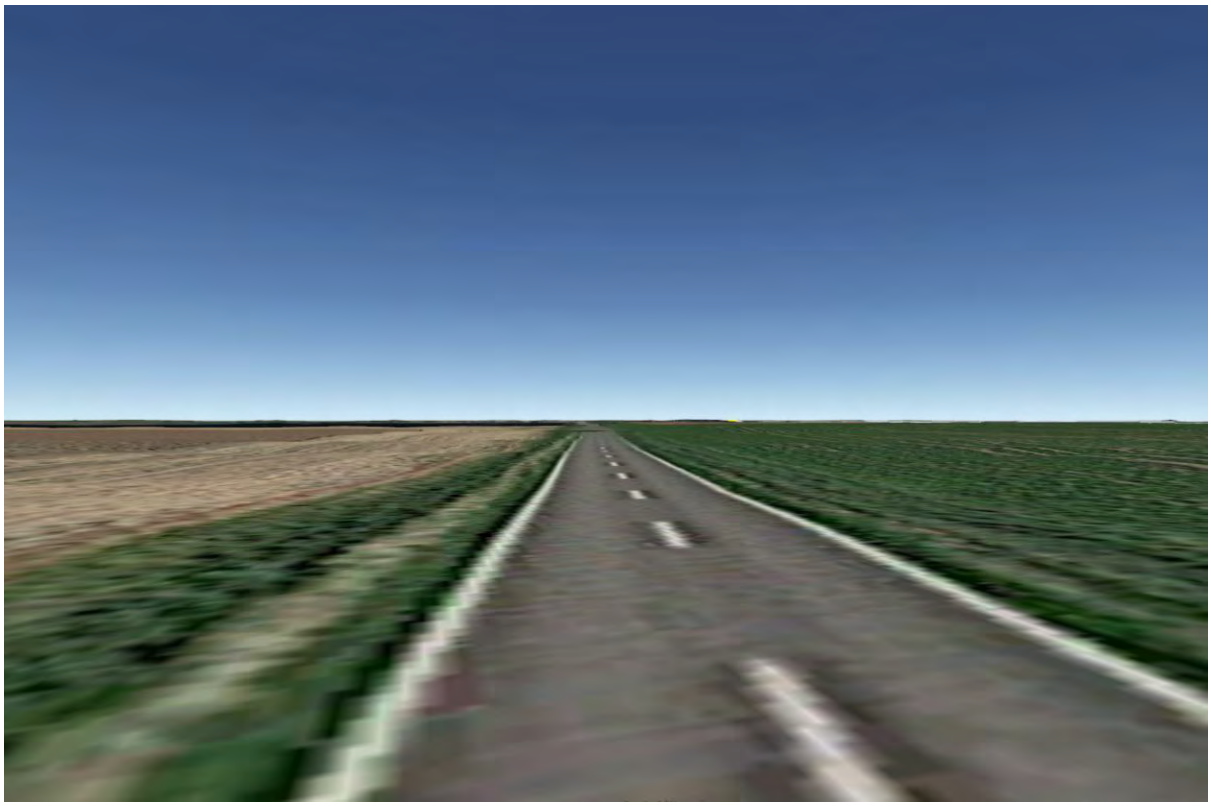
June 1st 06:00 UTC



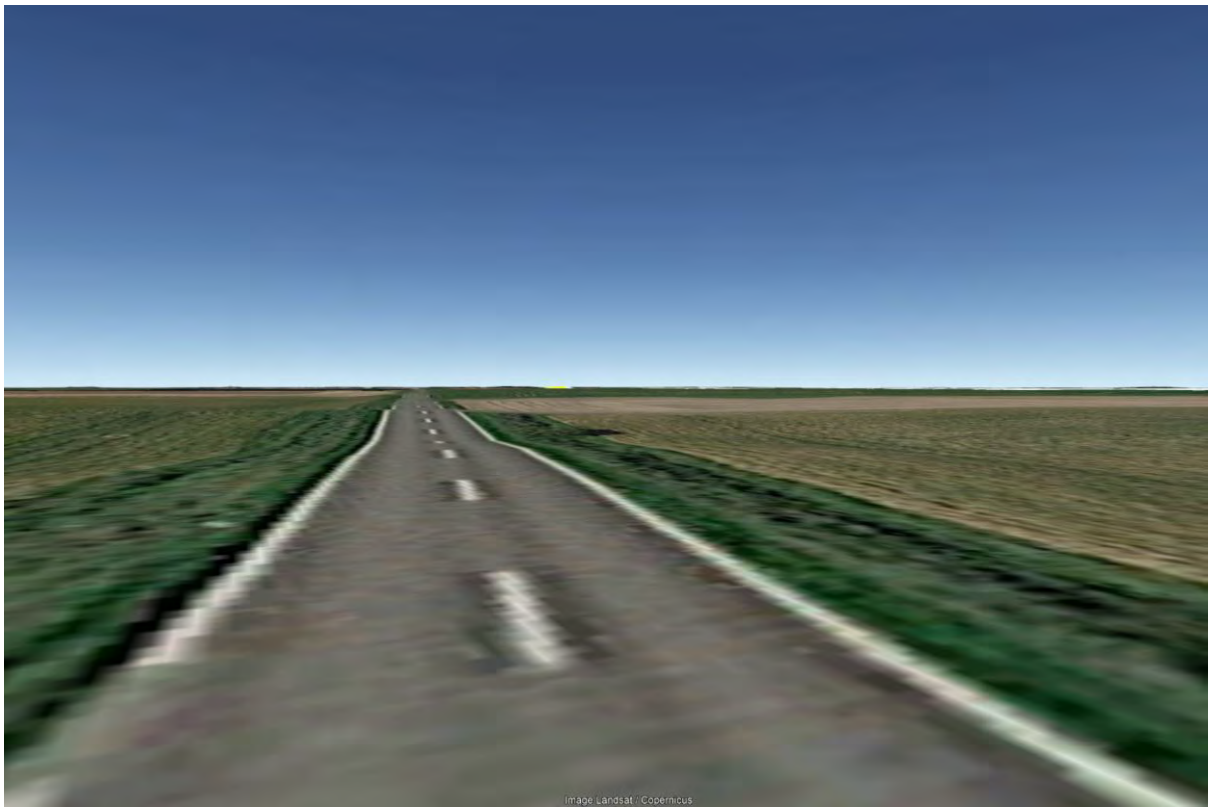
July 1st 06:00 UTC



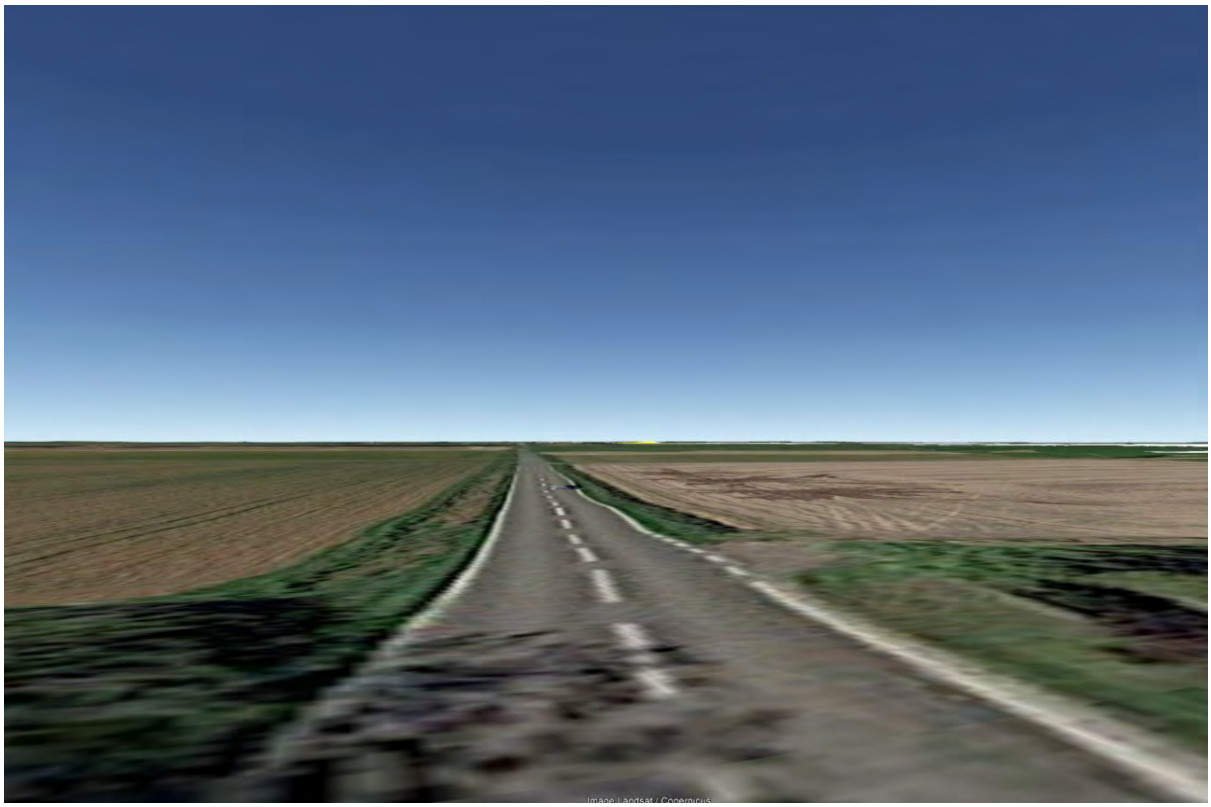
Receptor 109



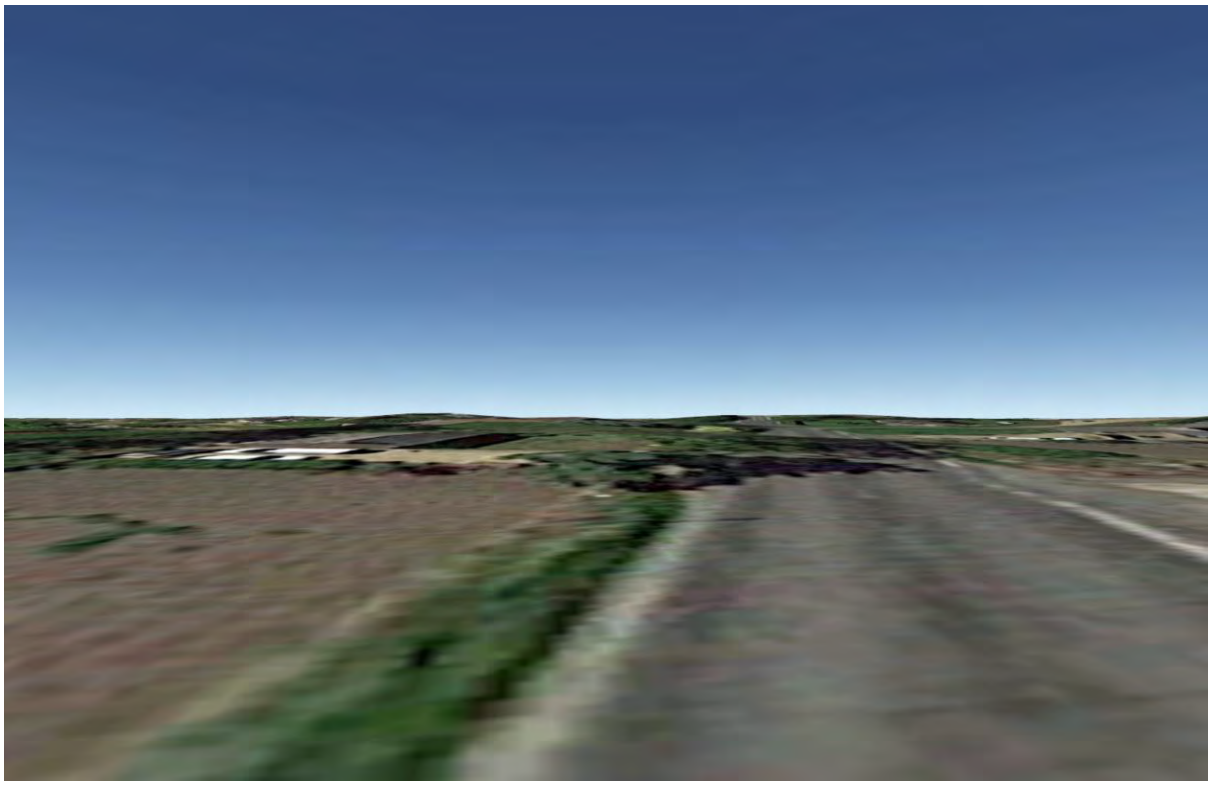
Receptor 110



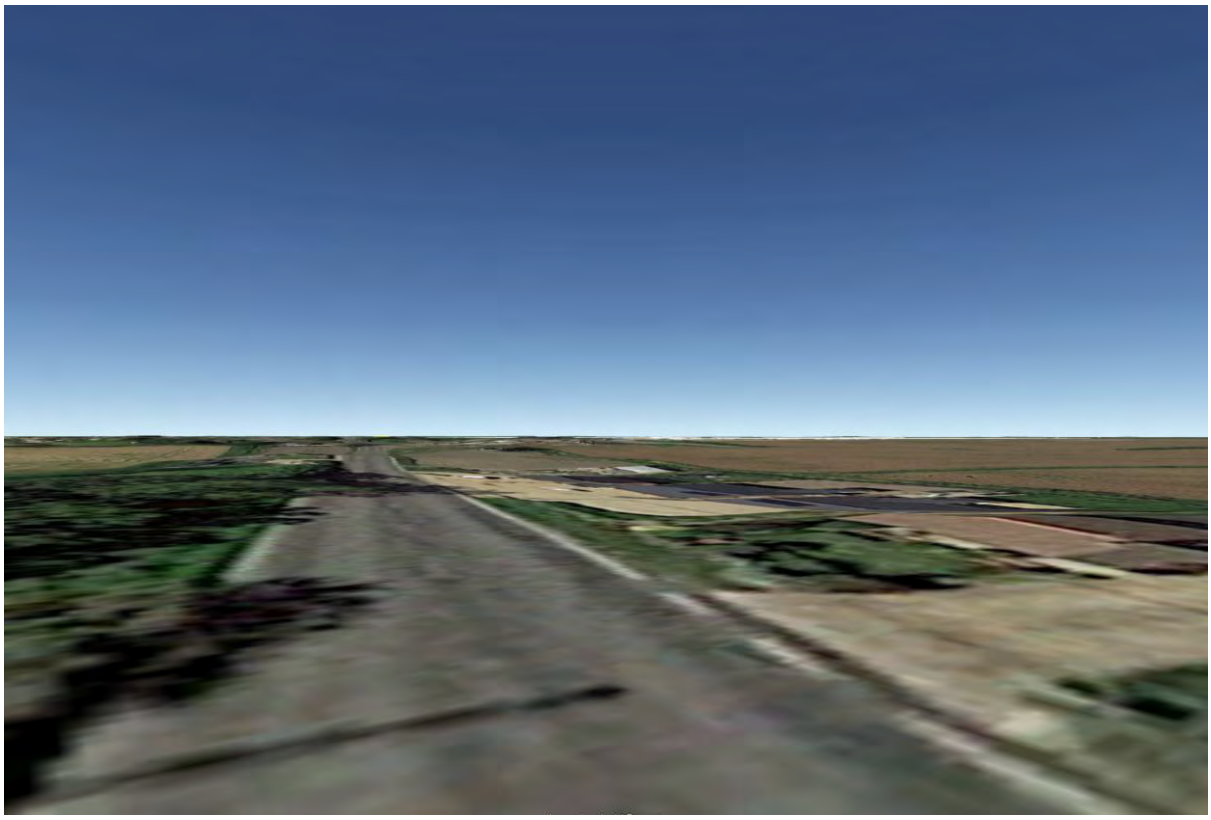
Receptor 111



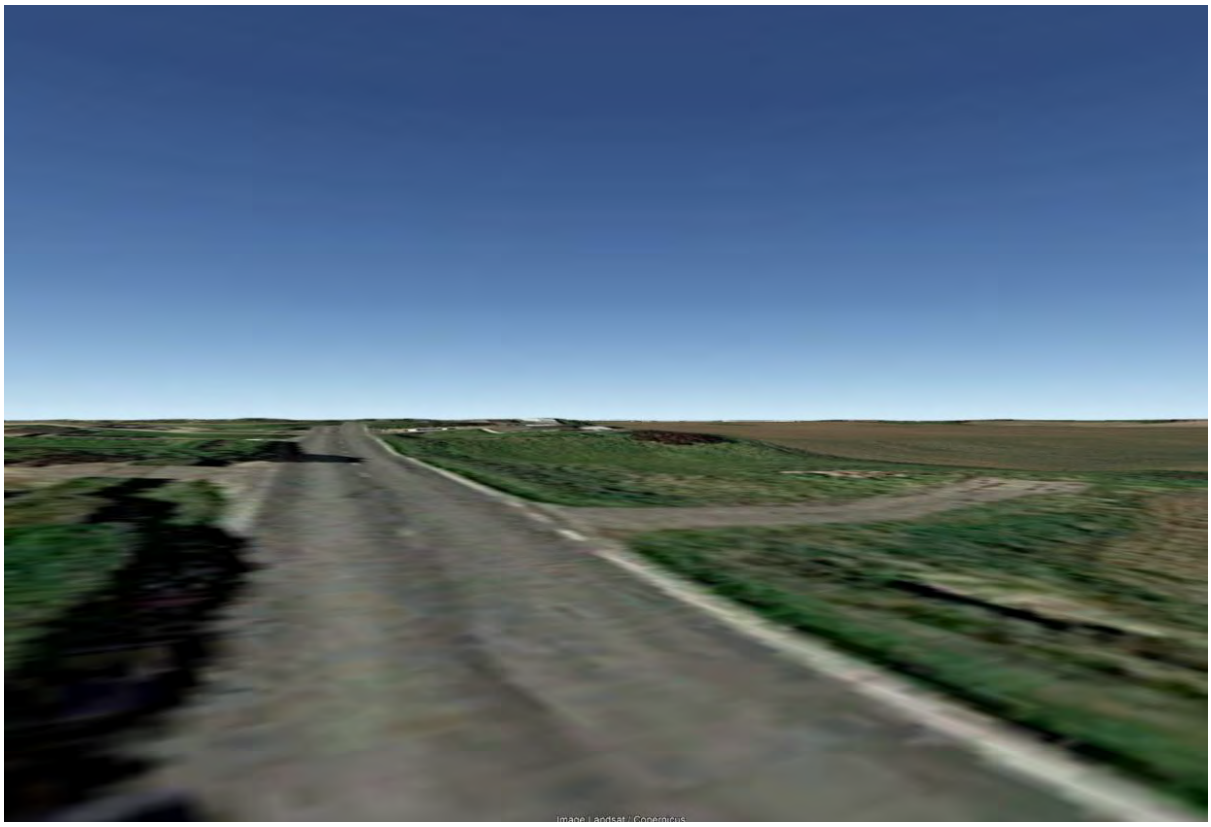
Receptor 112



Receptor 113

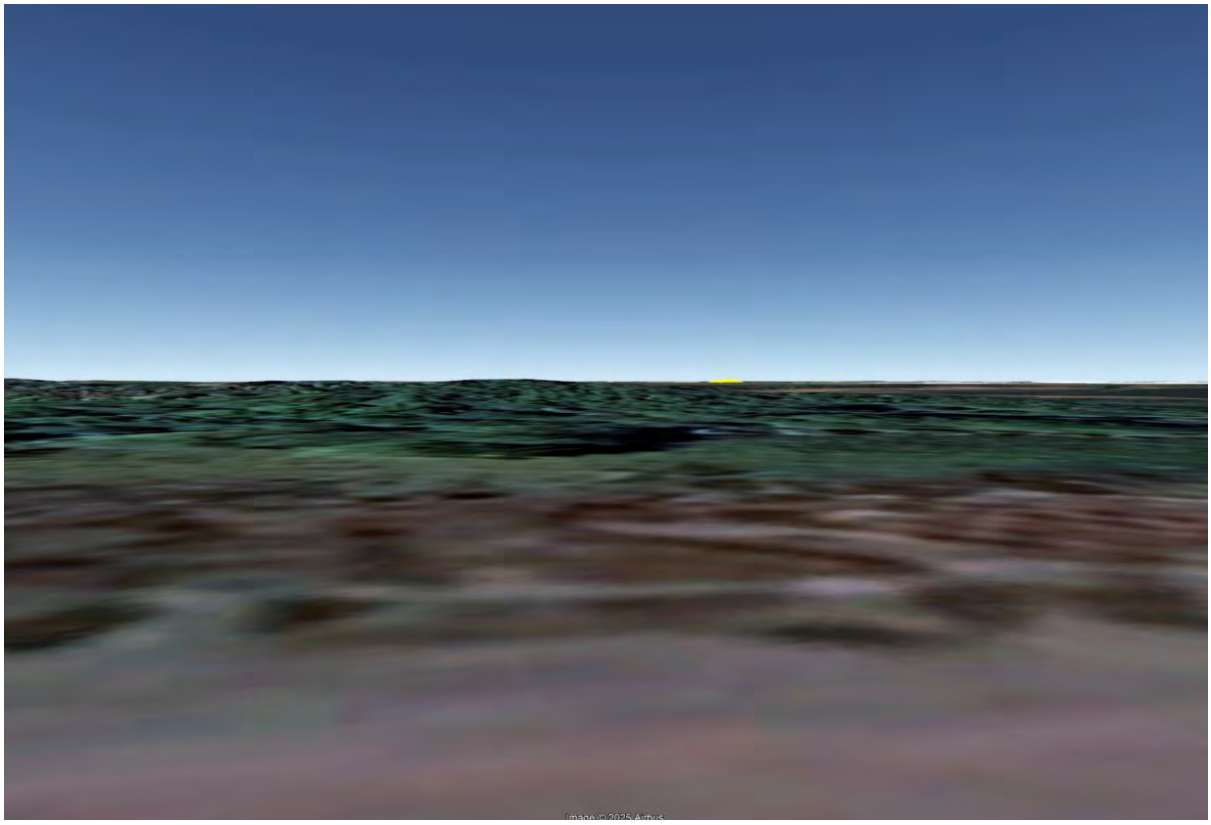


Receptor 114

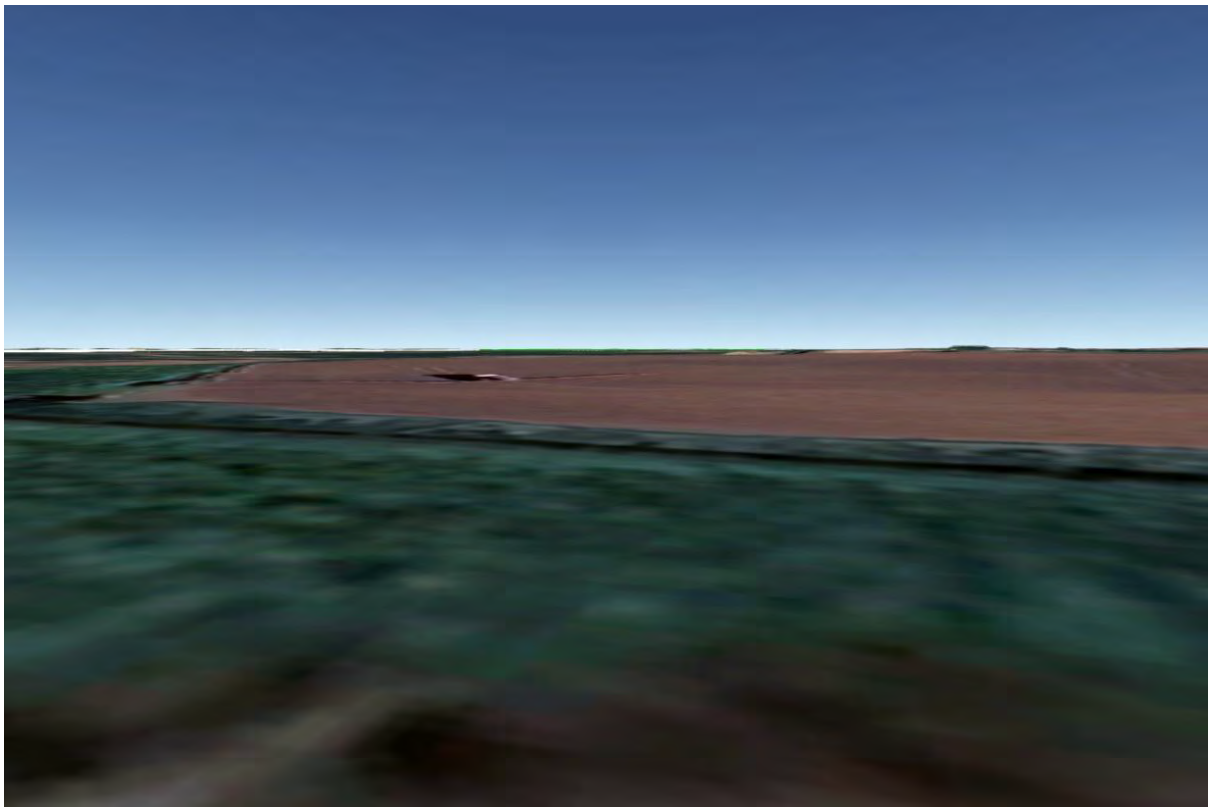


Receptor 115

Looking West



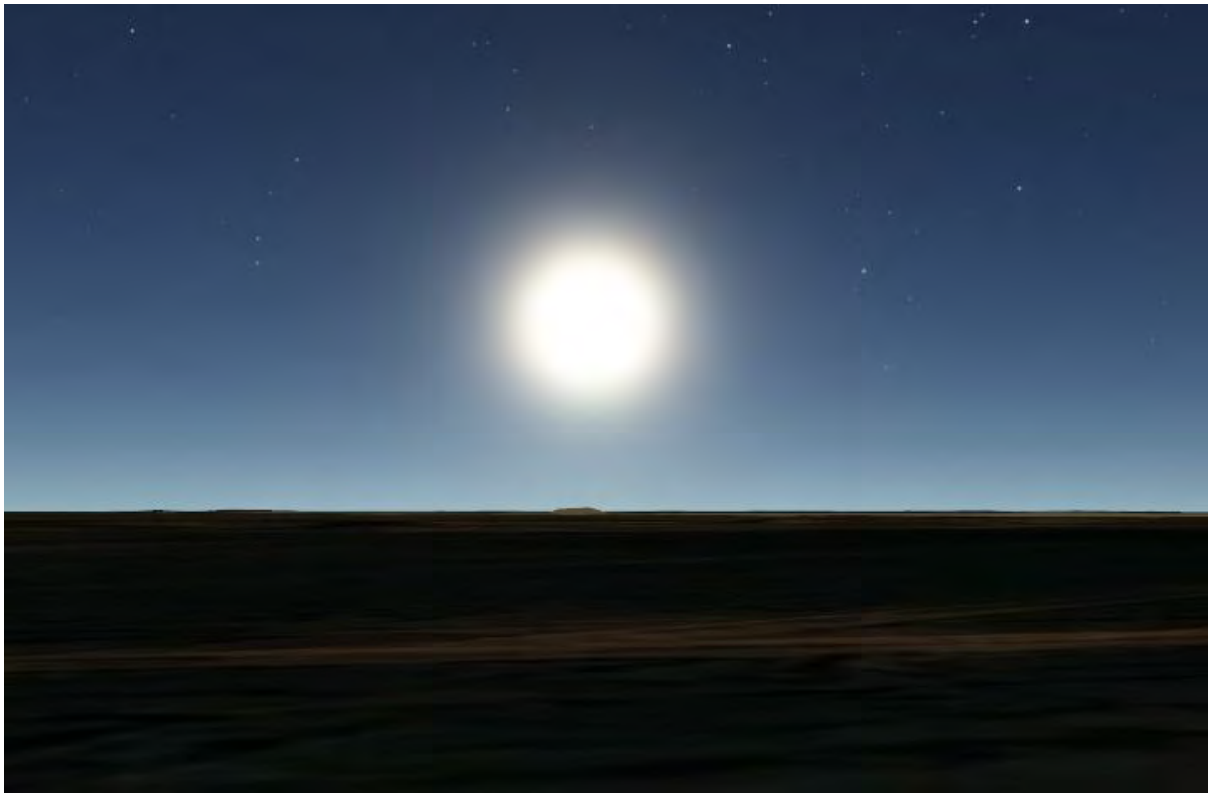
Looking East



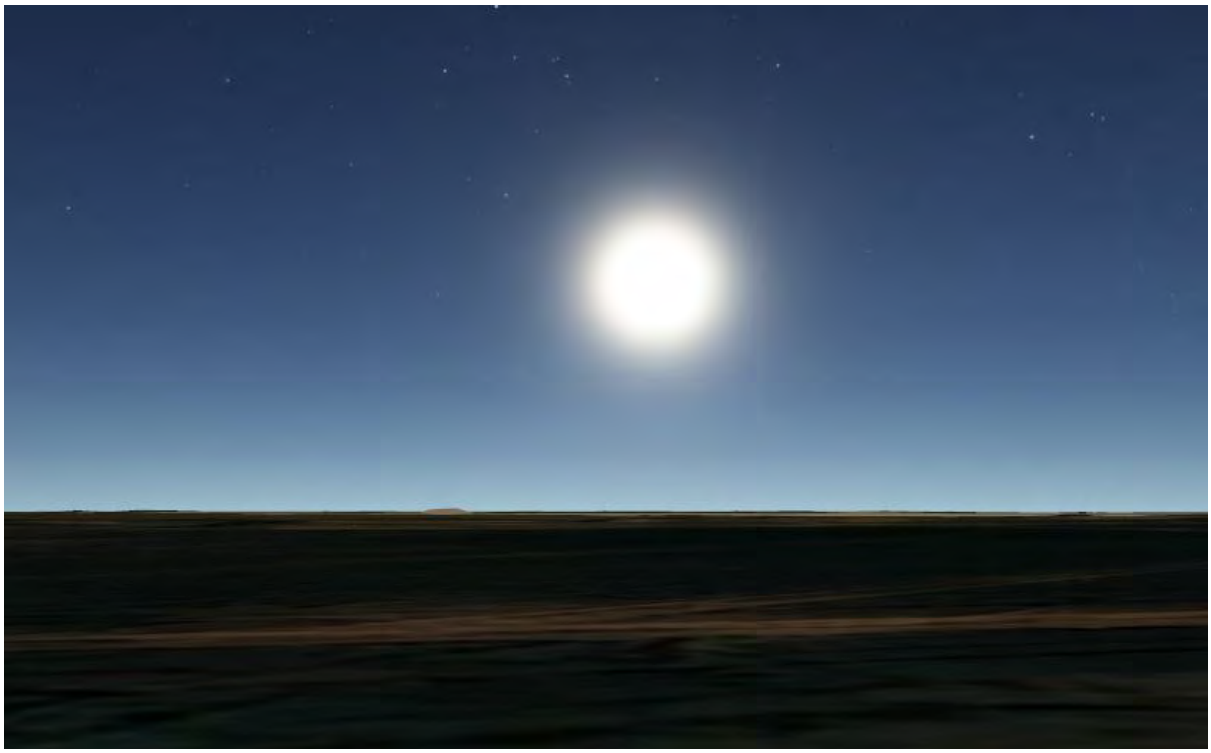
Receptor 116

Looking West

May 1st 18:30 UTC

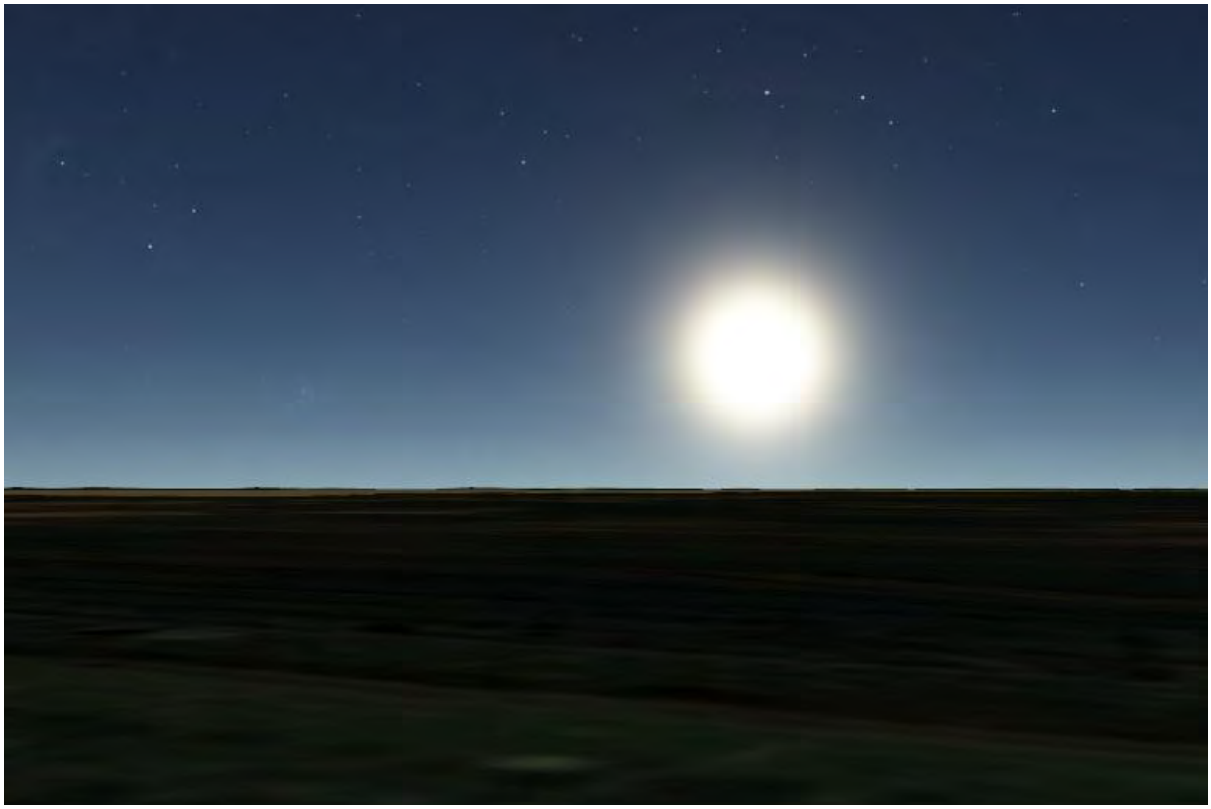


July 1st 19:00 UTC

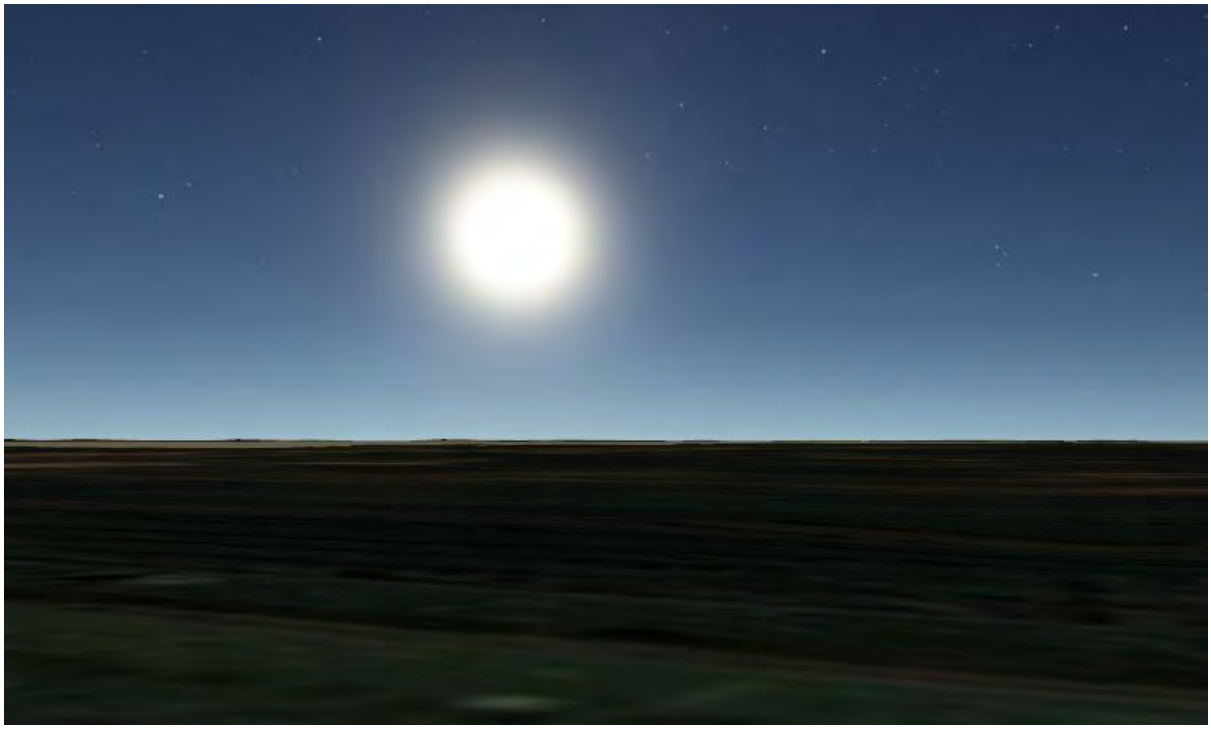


Looking East

May 1st 05:15 UTC



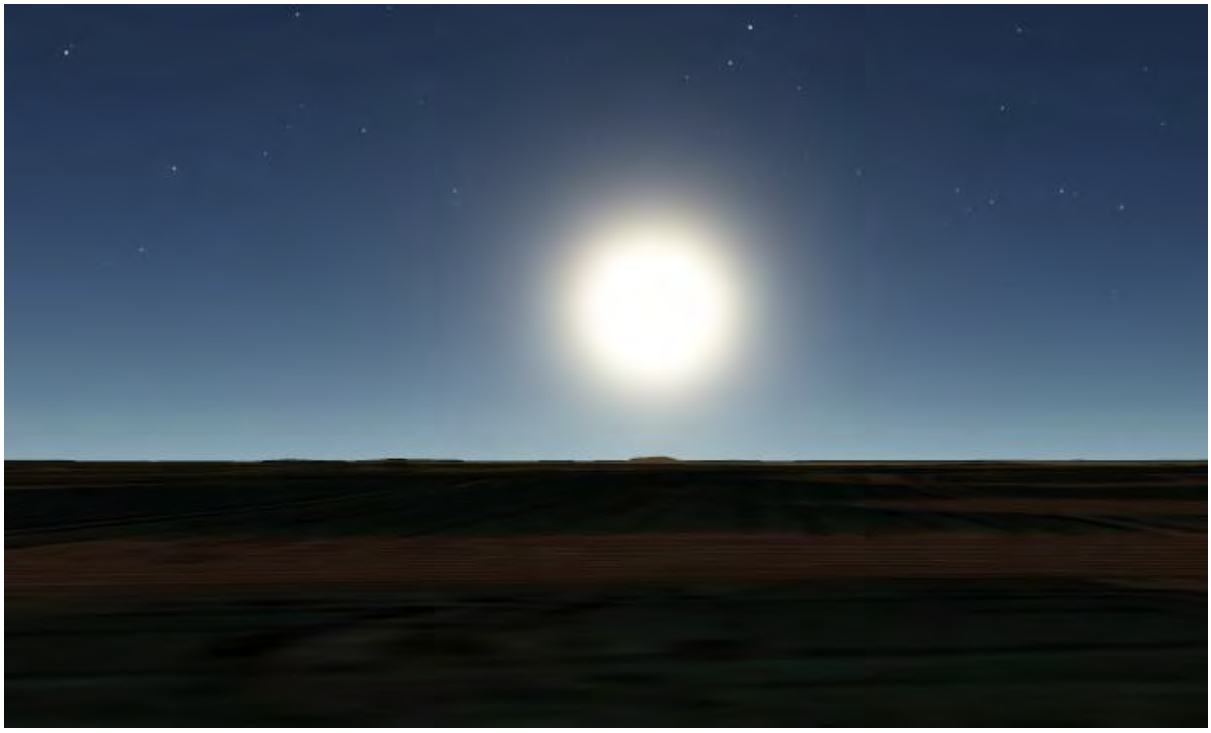
July 1st 05:00 UTC



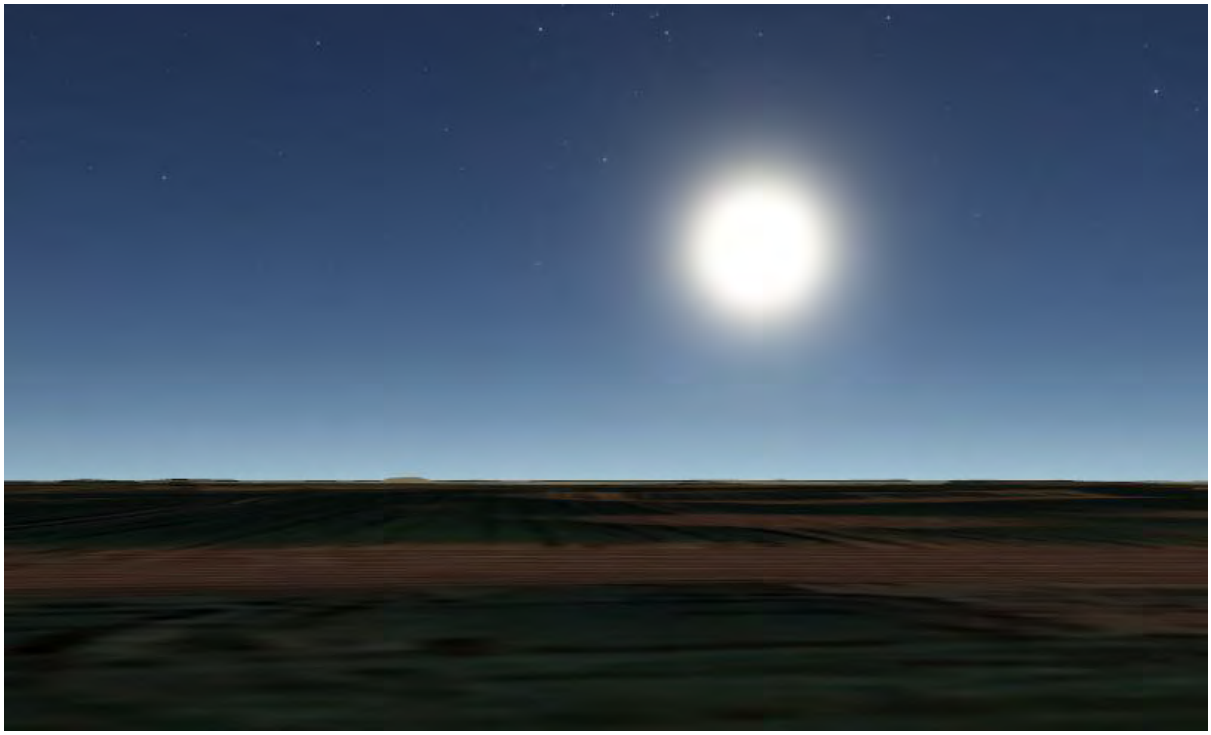
Receptor 117

Looking West

April 15th 18:15 UTC

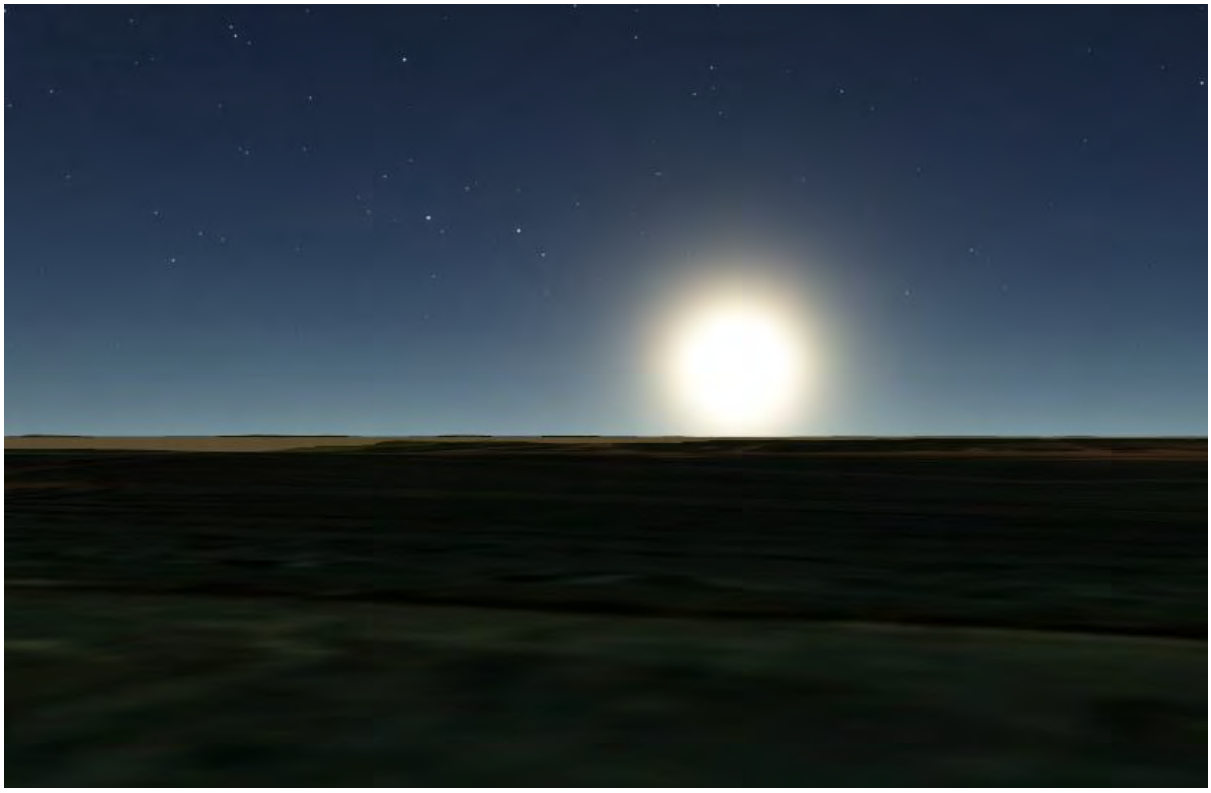


July 1st 19:00 UTC

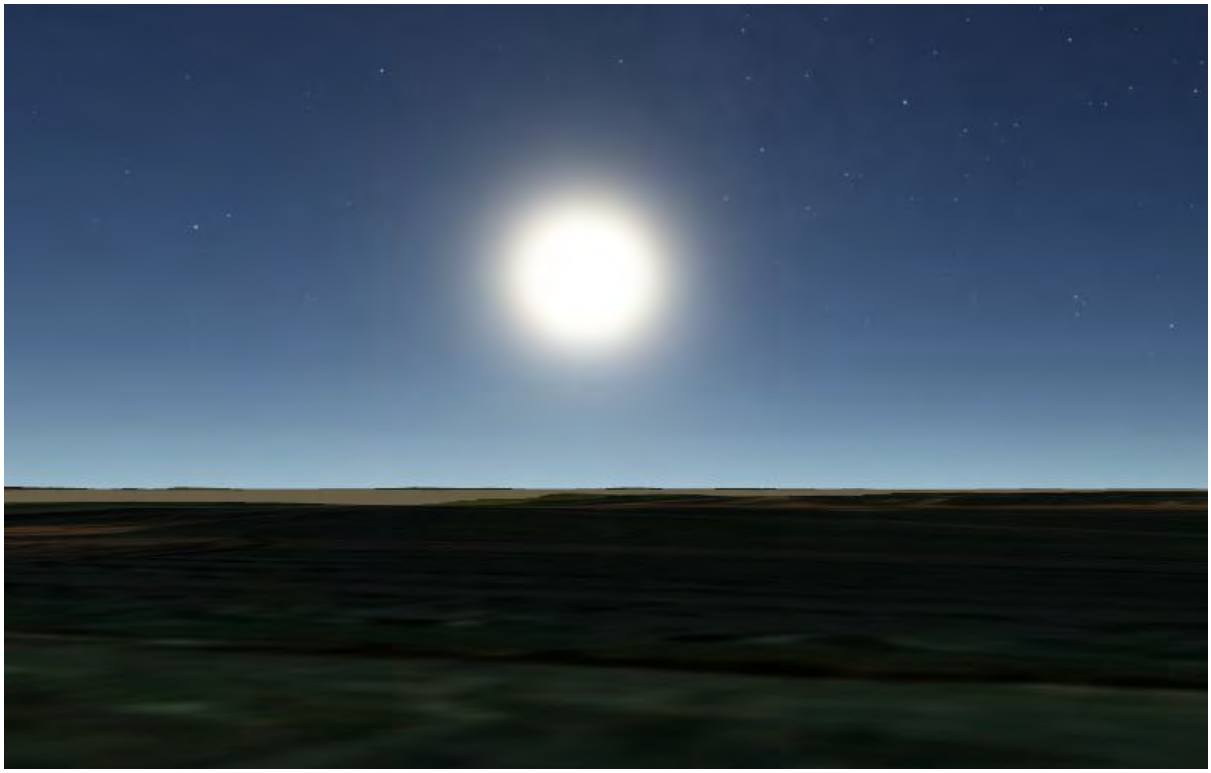


Looking East

April 15th 05:30 UTC



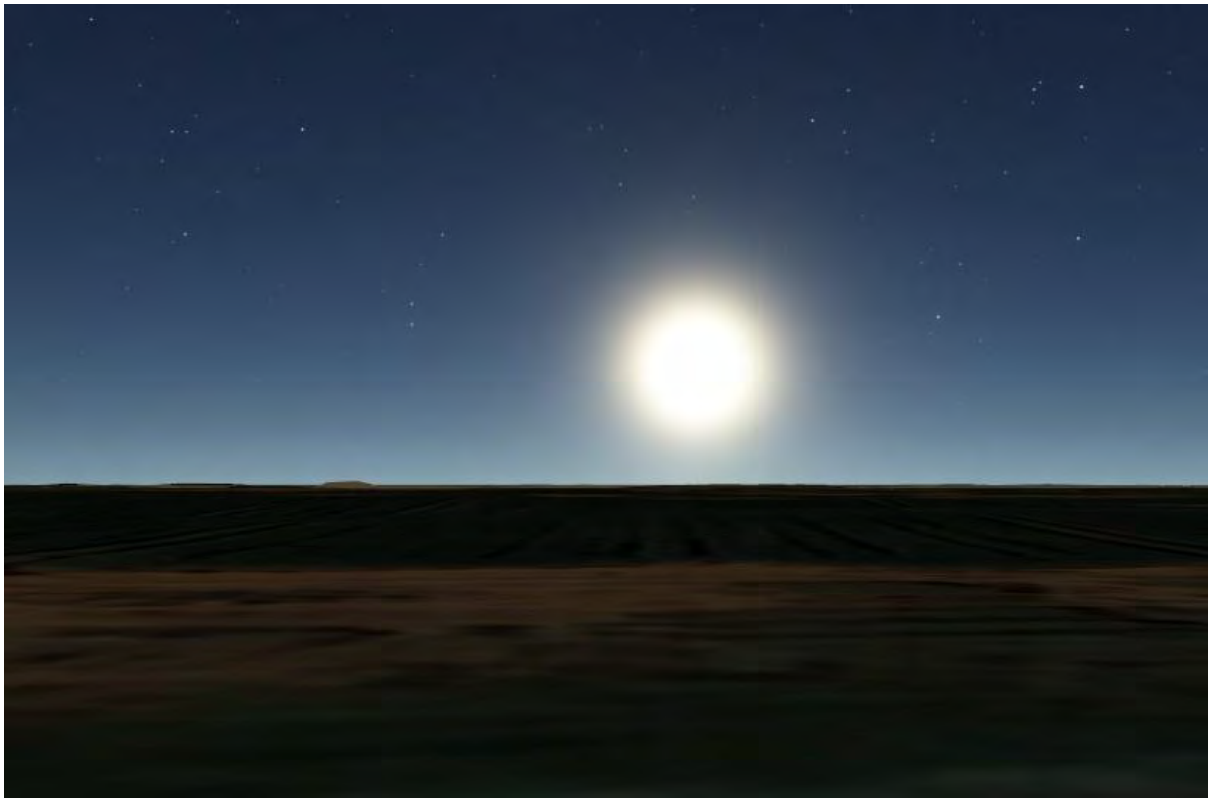
July 1st 05:00 UTC



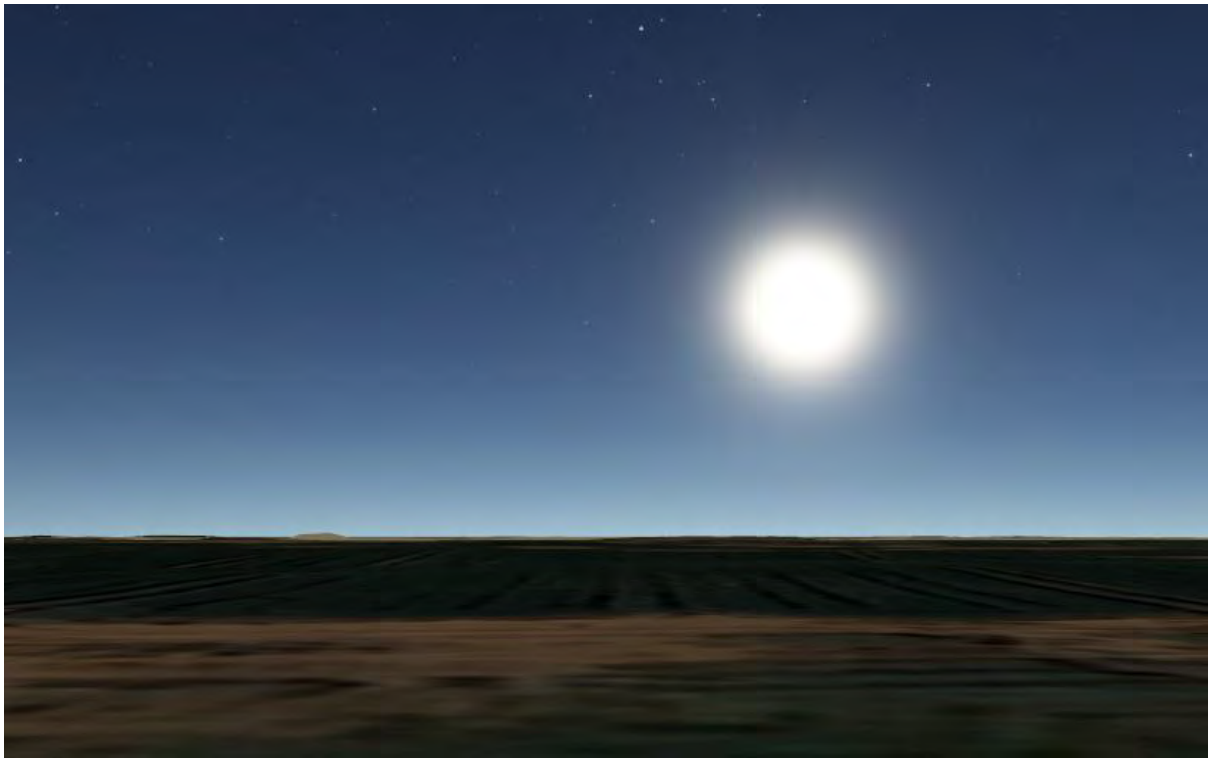
Receptor 118

Looking West

May 1st 18:45 UTC

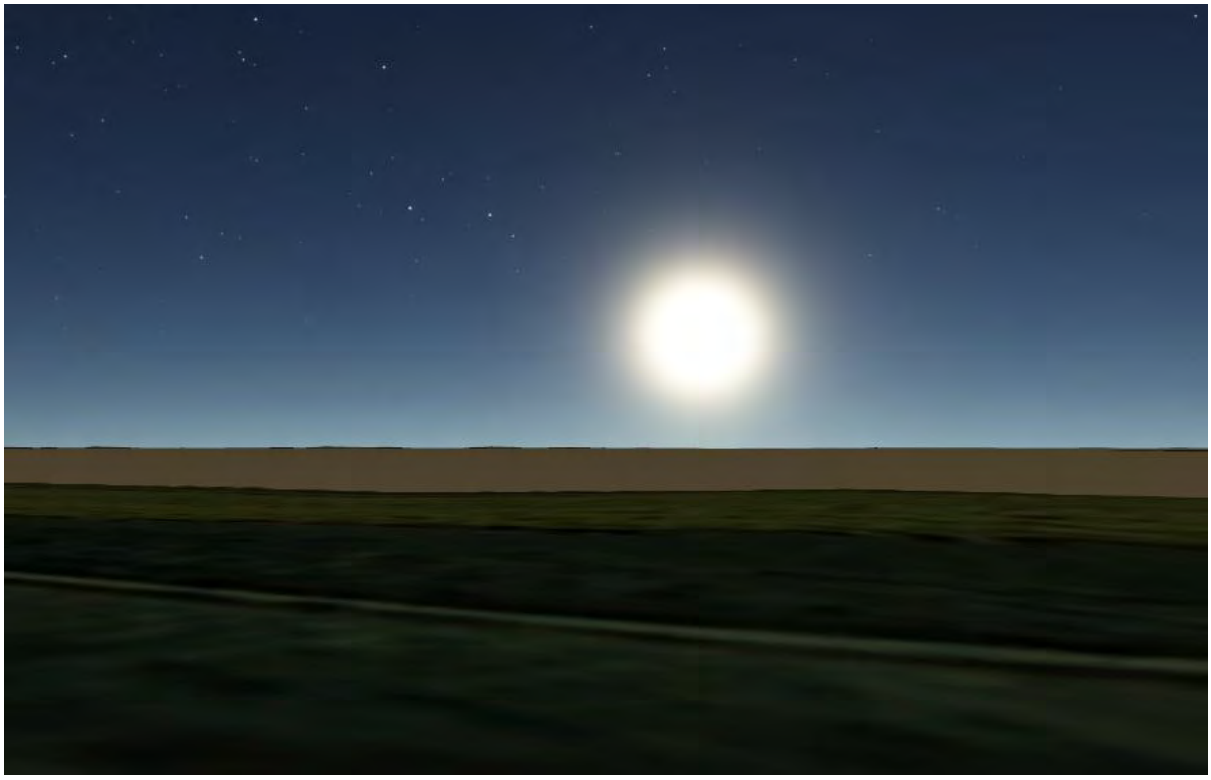


July 1st 19:00 UTC

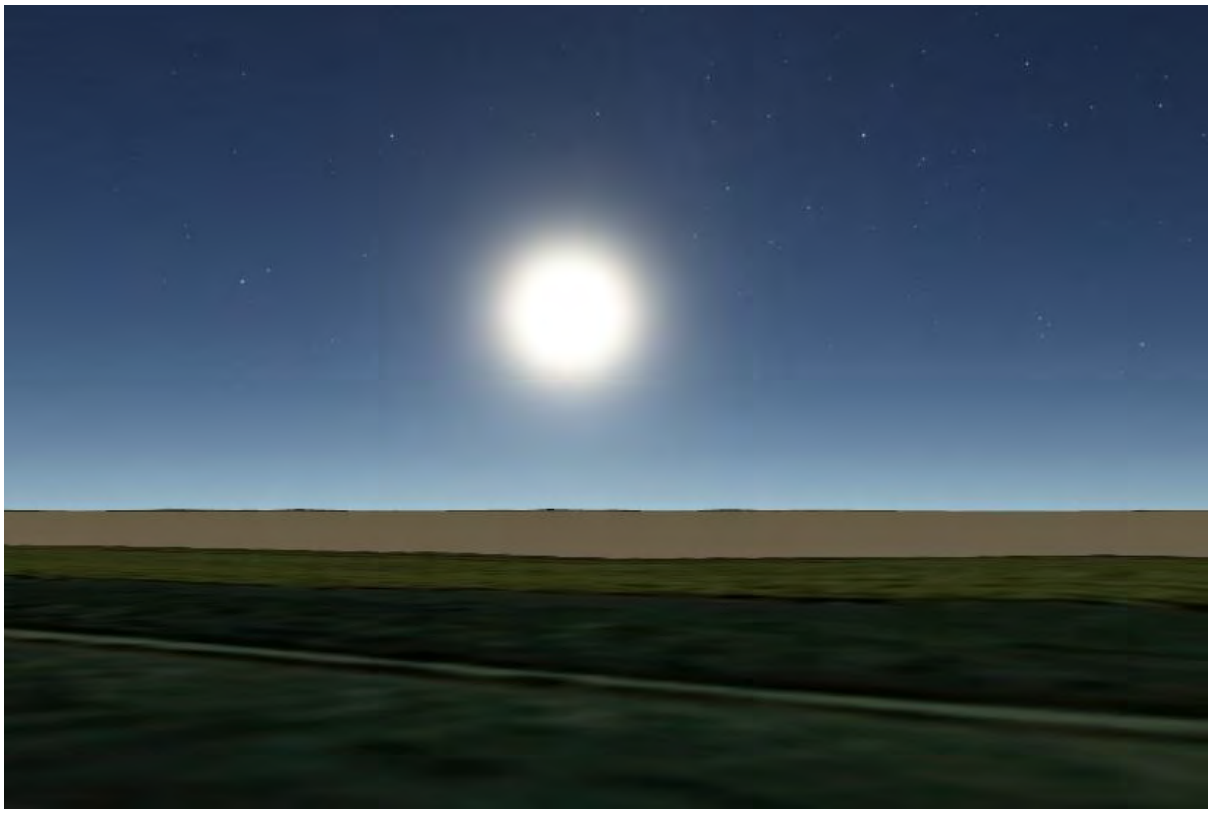


Looking East

April 15th 05:45 UTC



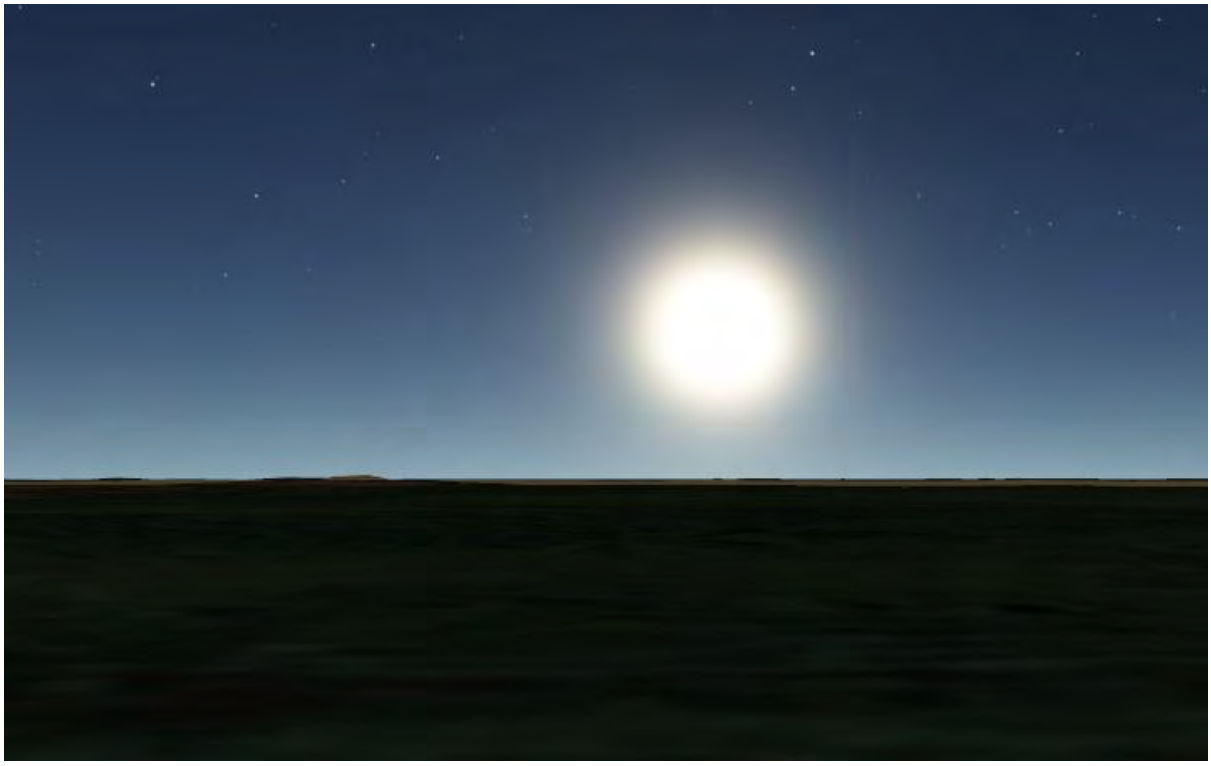
July 1st 05:00 UT



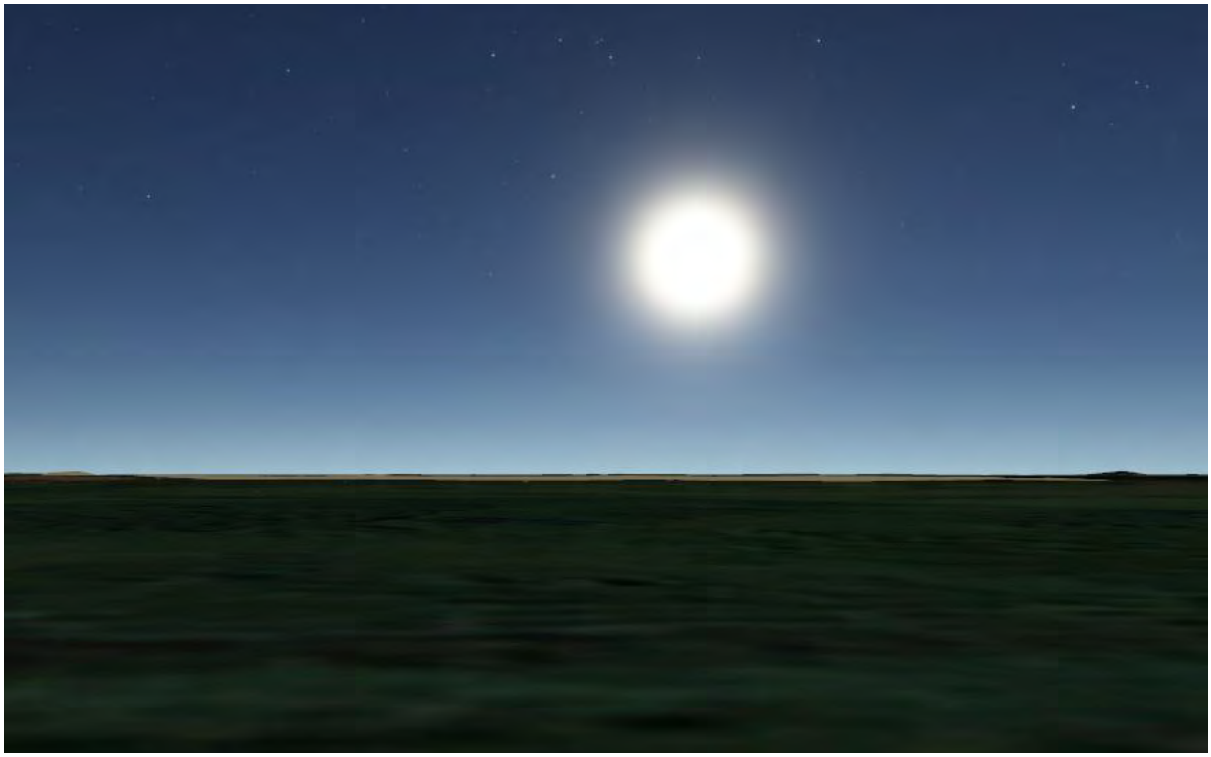
Receptor 119

Looking West

April 15th 18:15 UTC

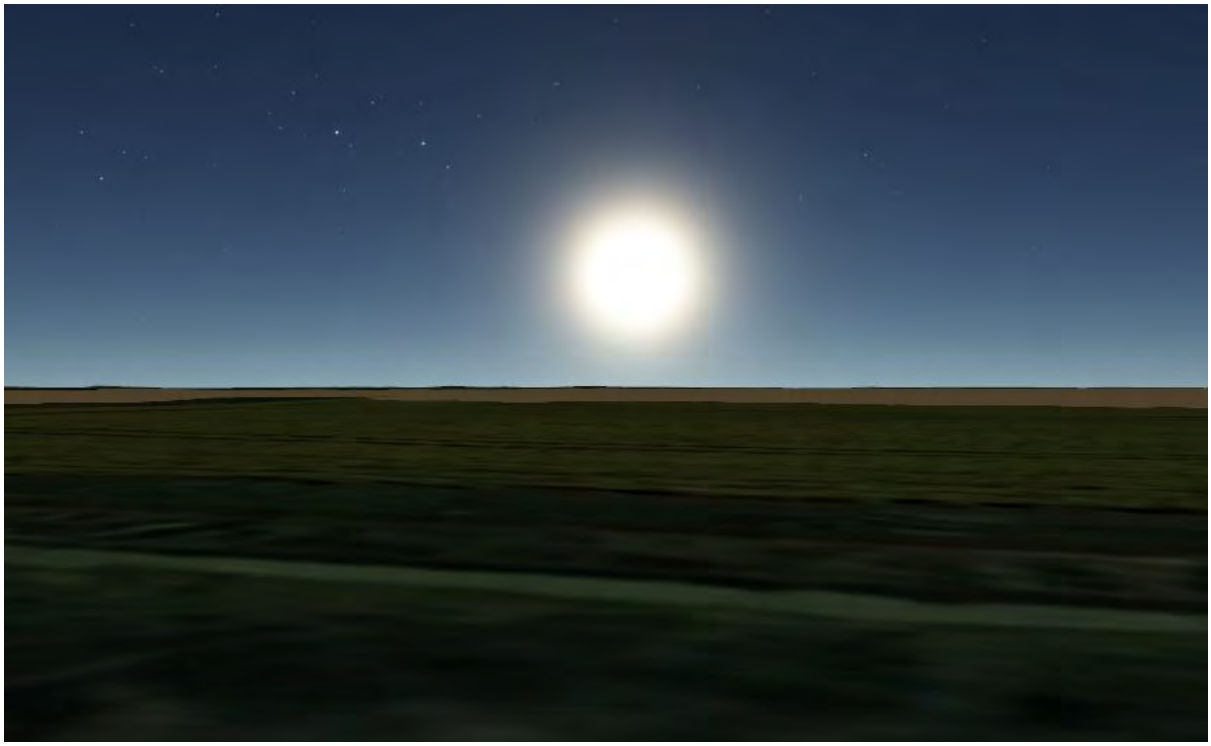


July 1st 19:00 UTC

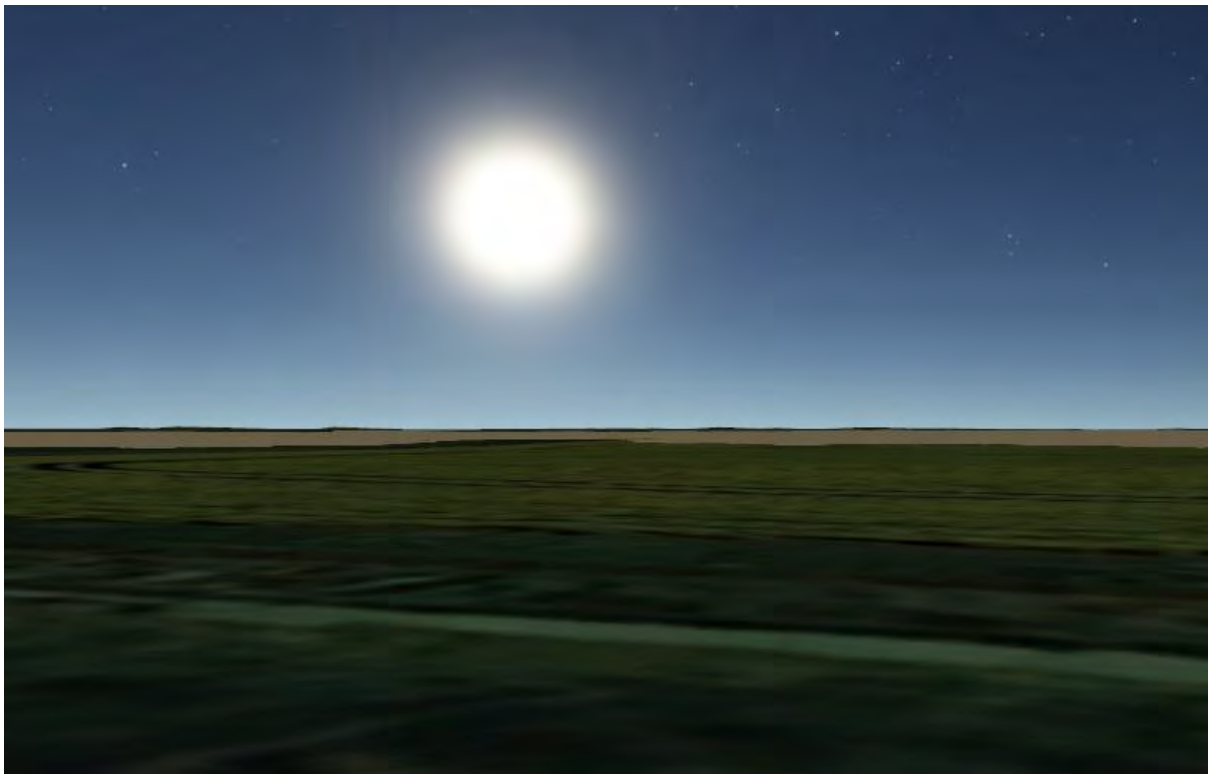


Looking East

April 15th 05:45 UTC

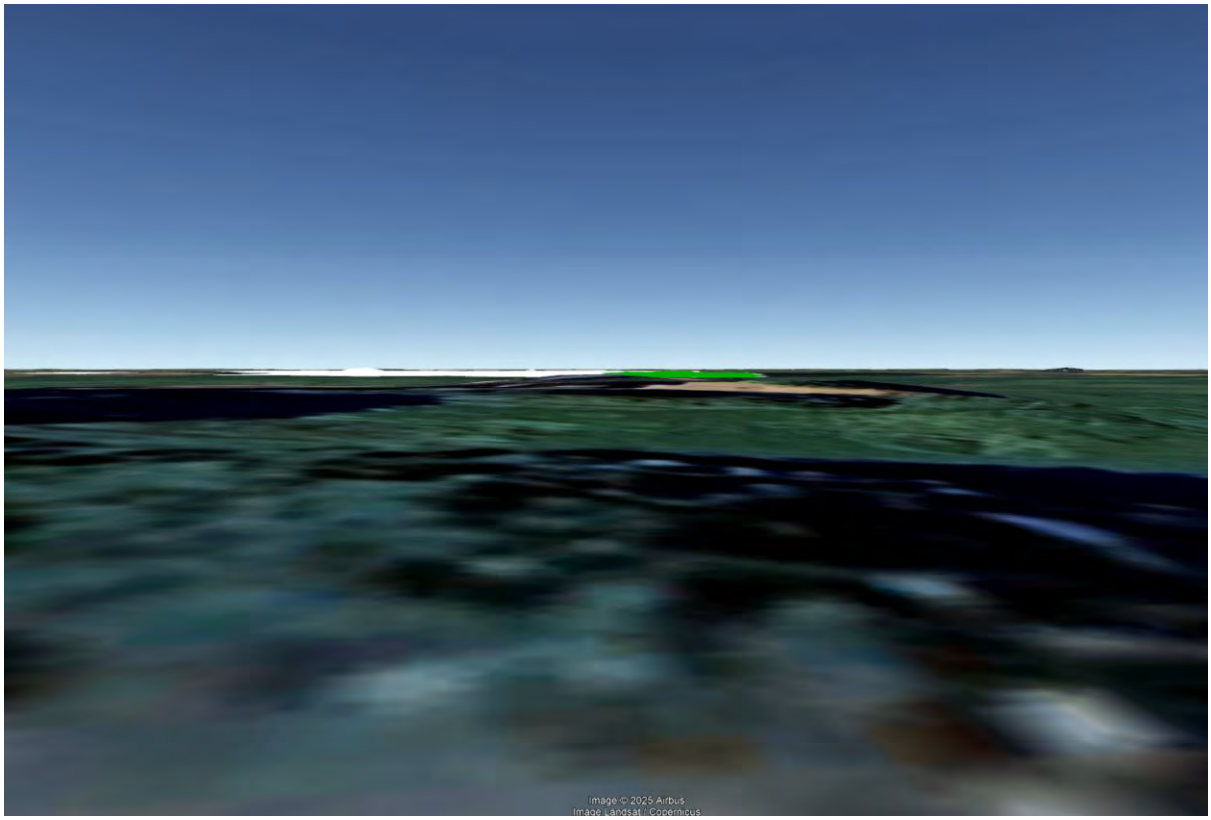


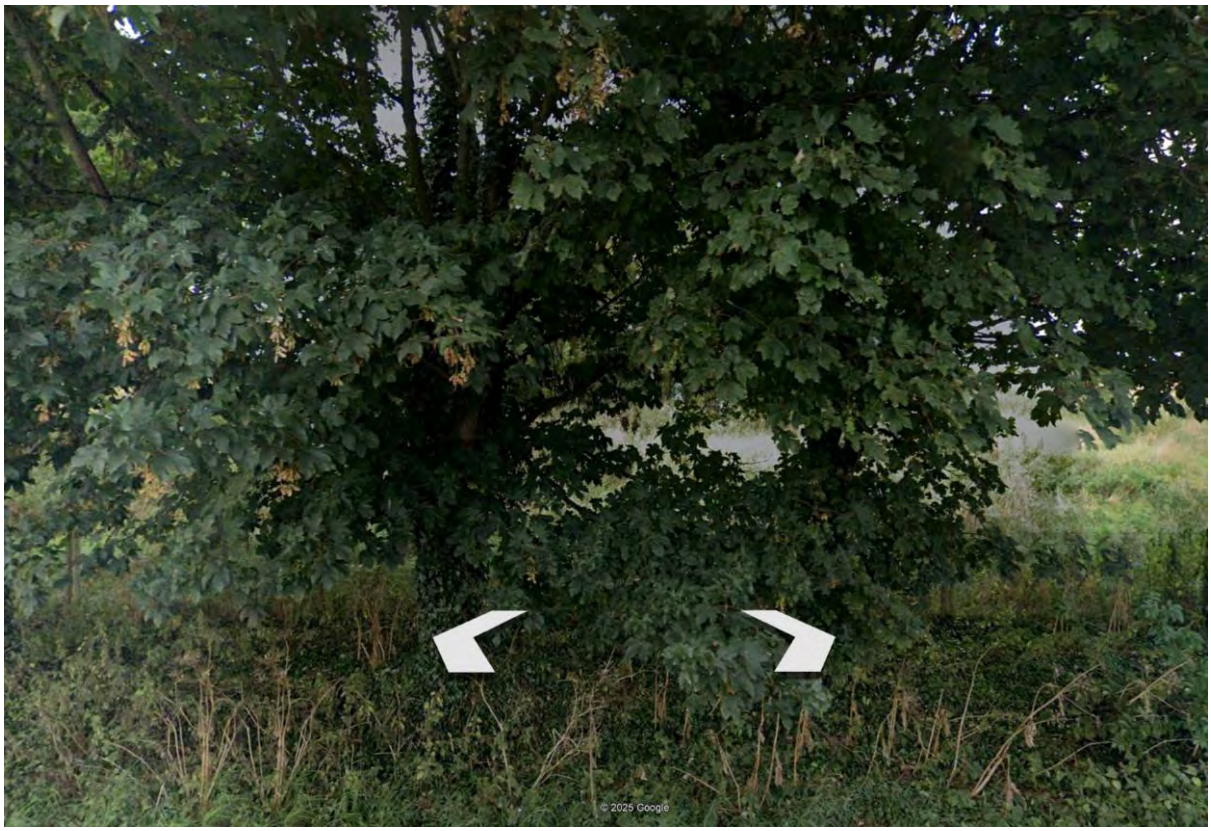
July 1st 05:00 UTC



Receptor 120

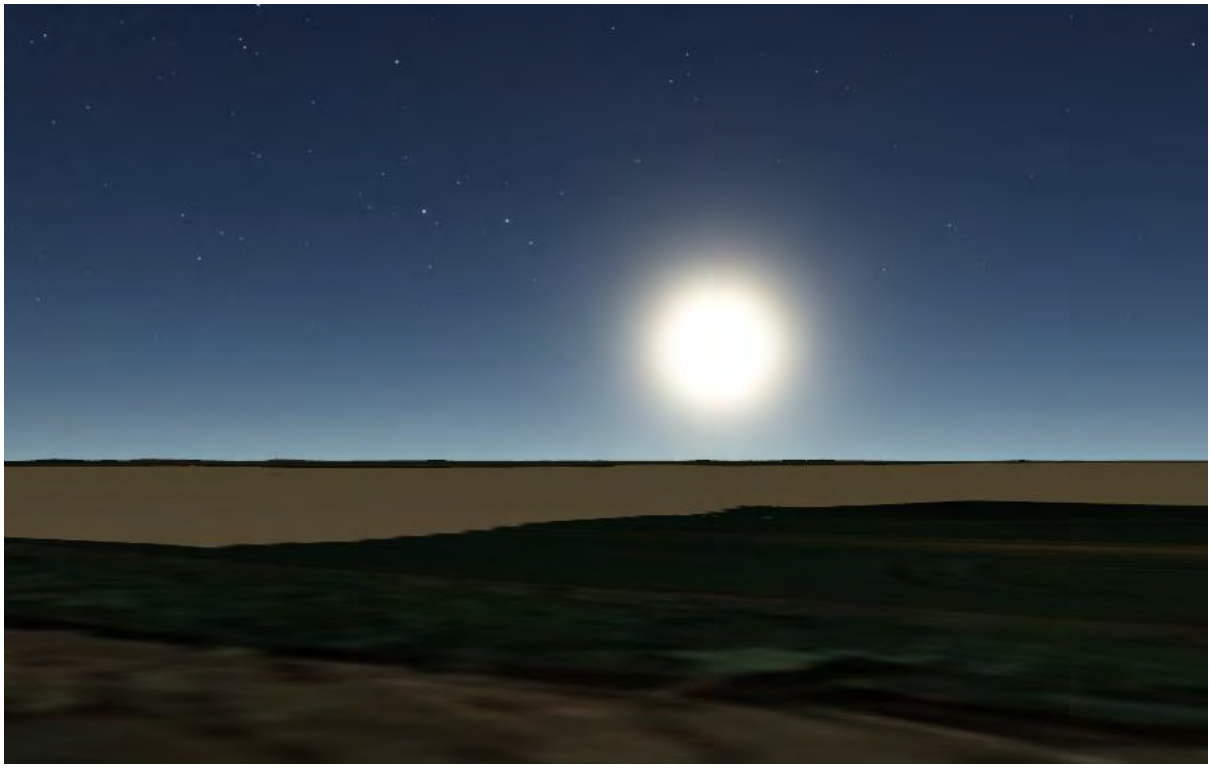
Looking West



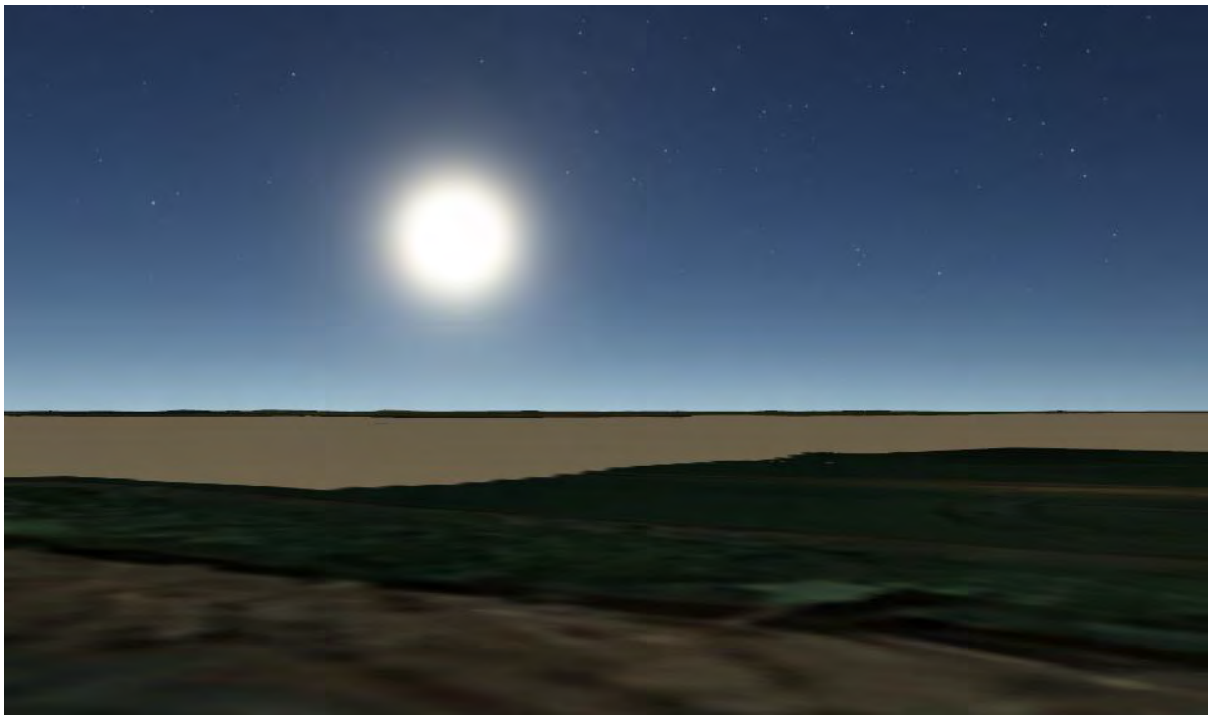


Looking East

April 15th 05:45 UTC

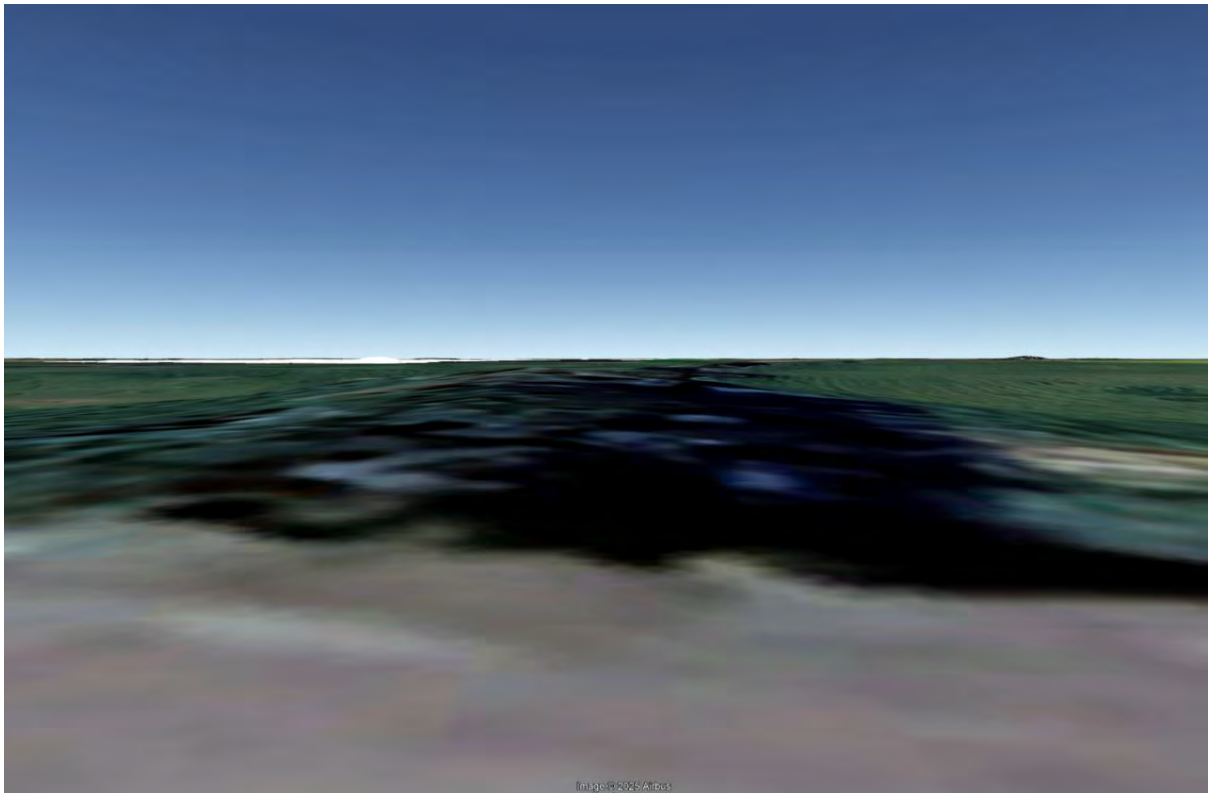


July 1st 05:00 UTC



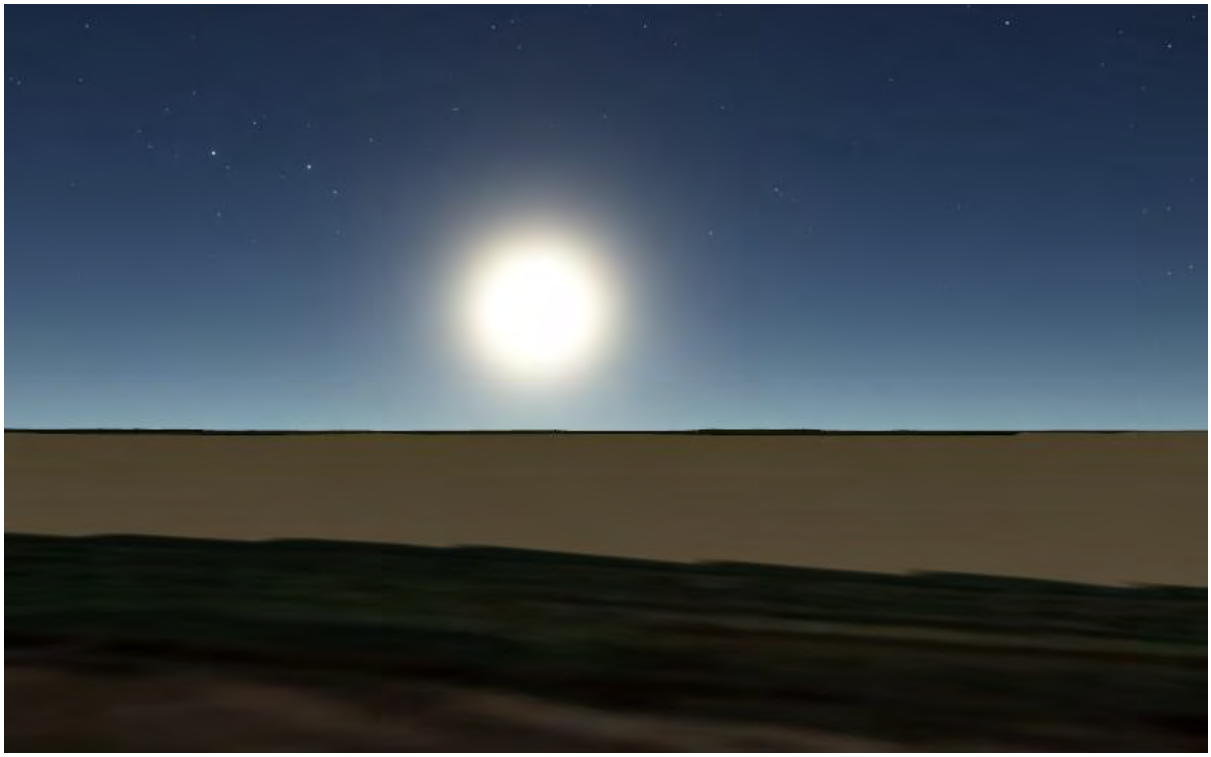
Receptor 121

Looking West

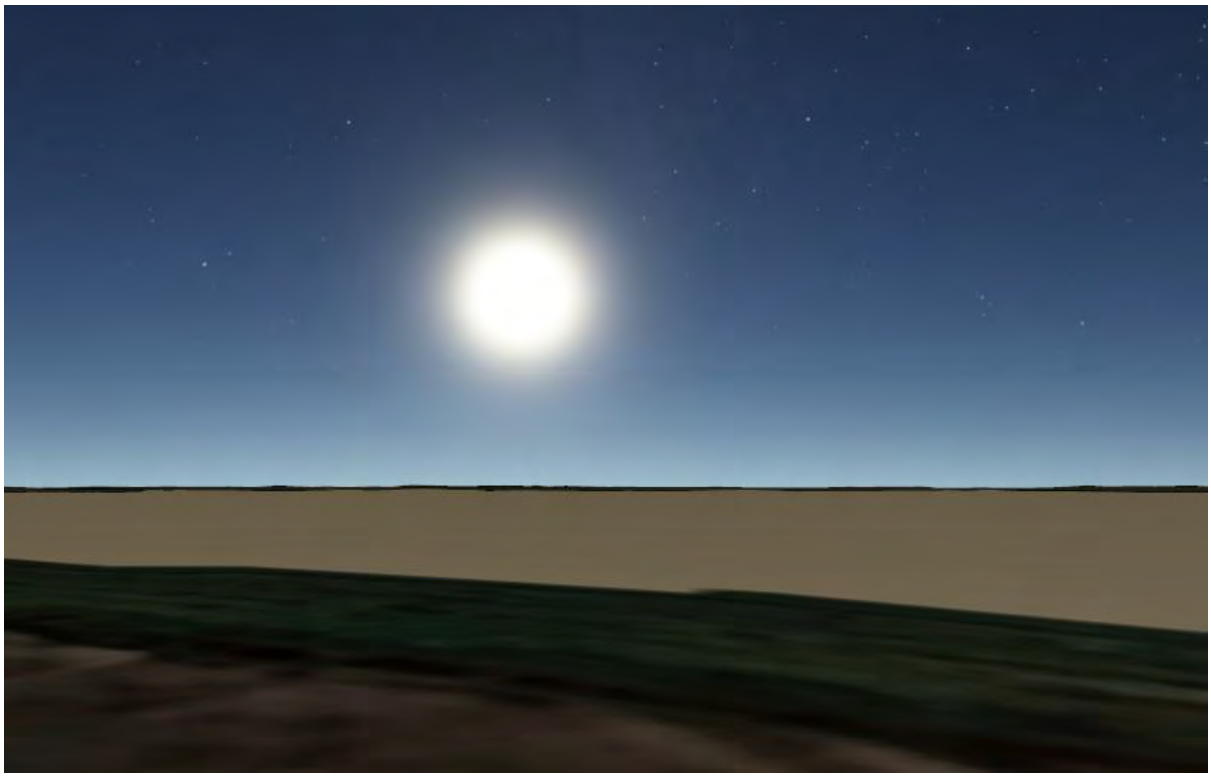


Looking East

April 05:45 UTC

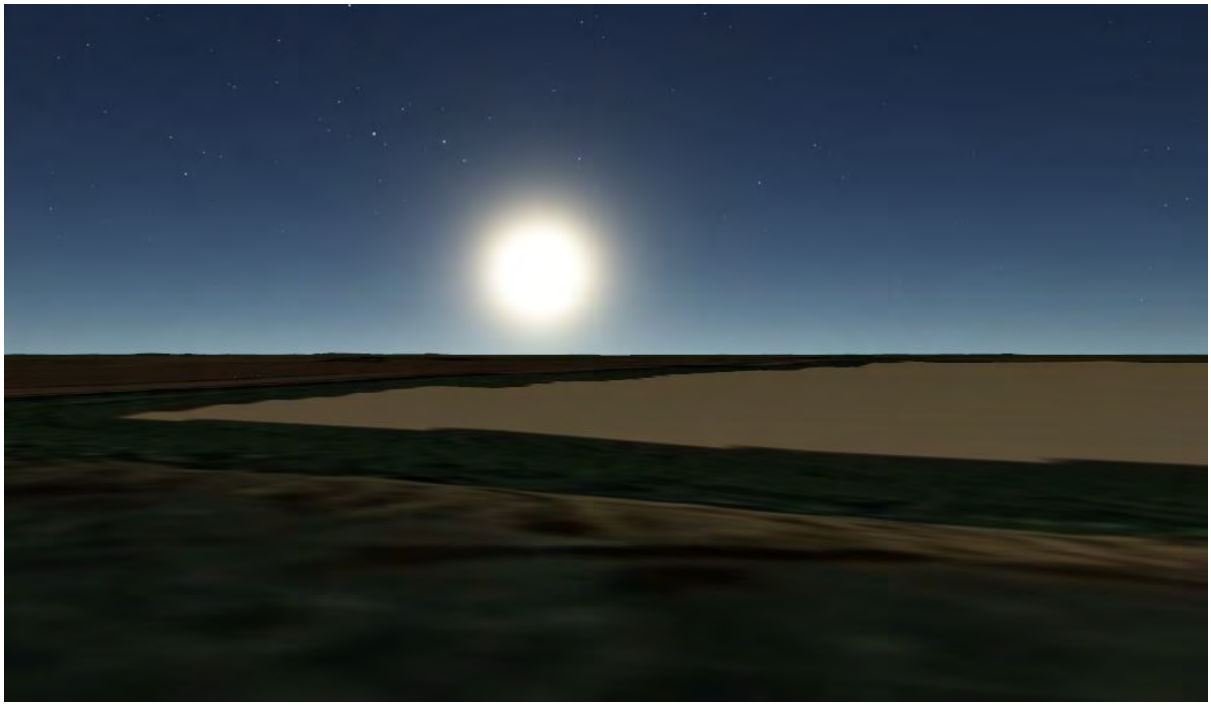


July 1st 05:00 UTC

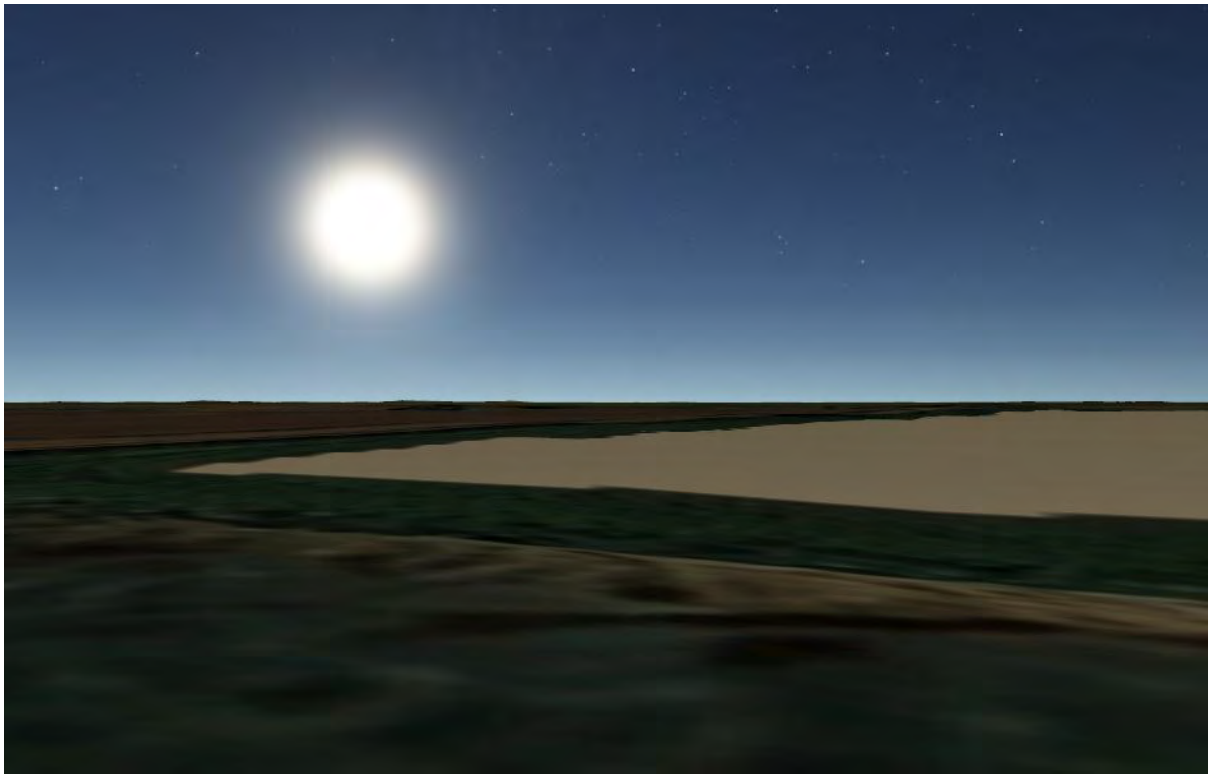


Receptor 122

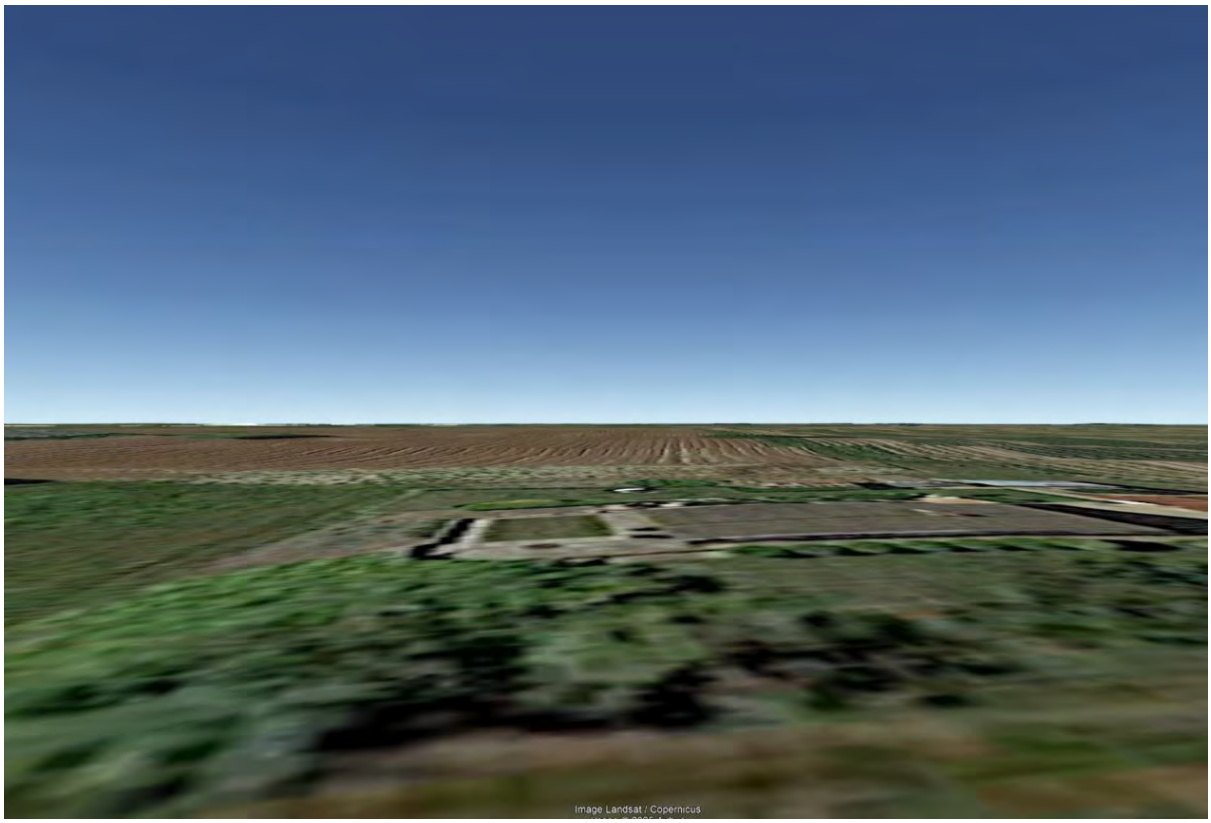
April 20th 05:30 UTC



July 1st 05:00 UTC

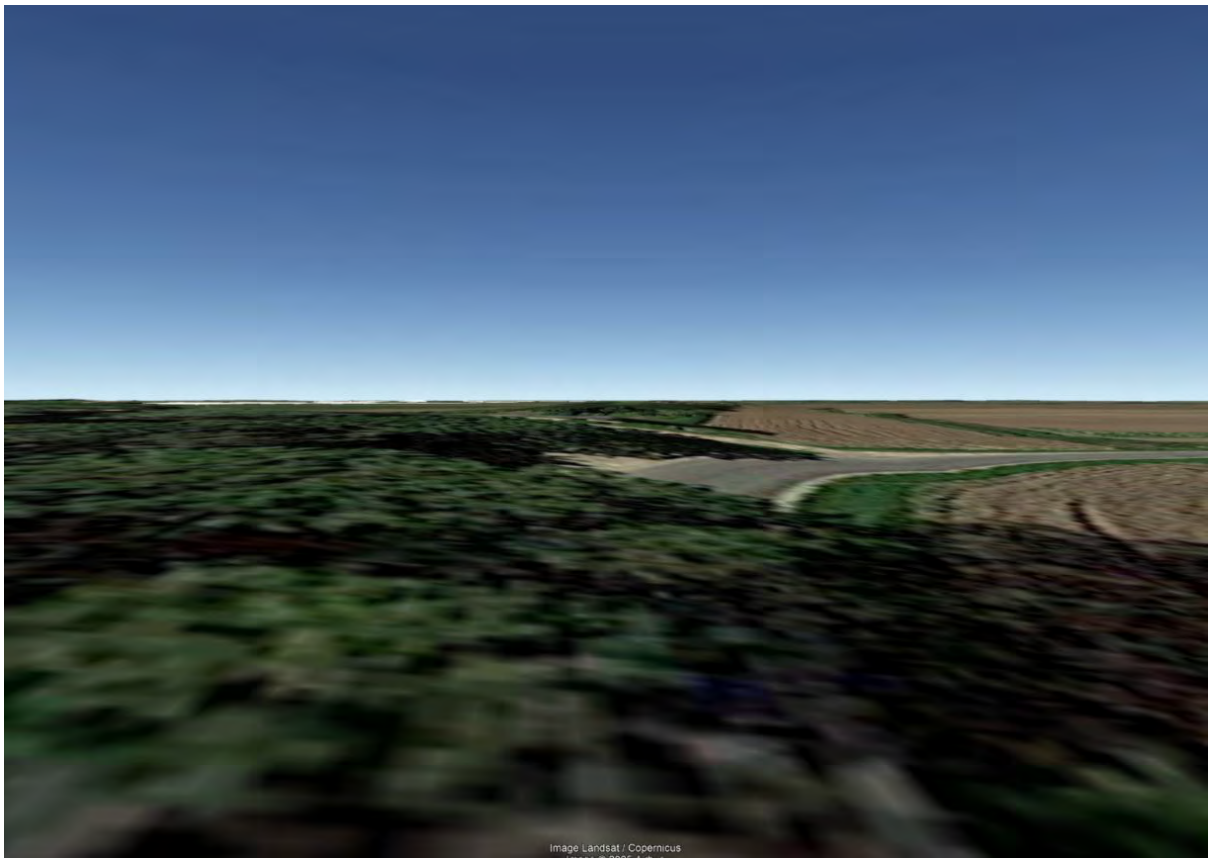


Receptor 123

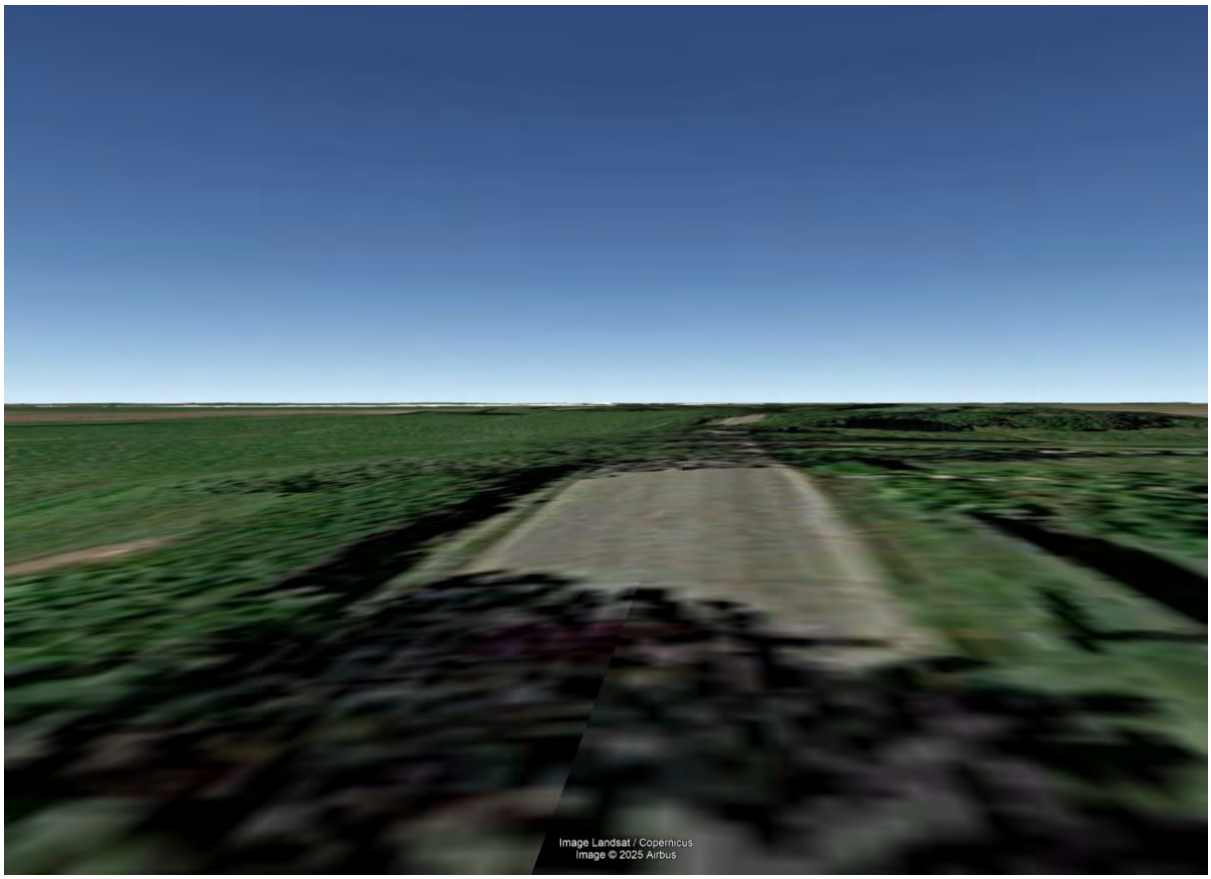


Receptor 124

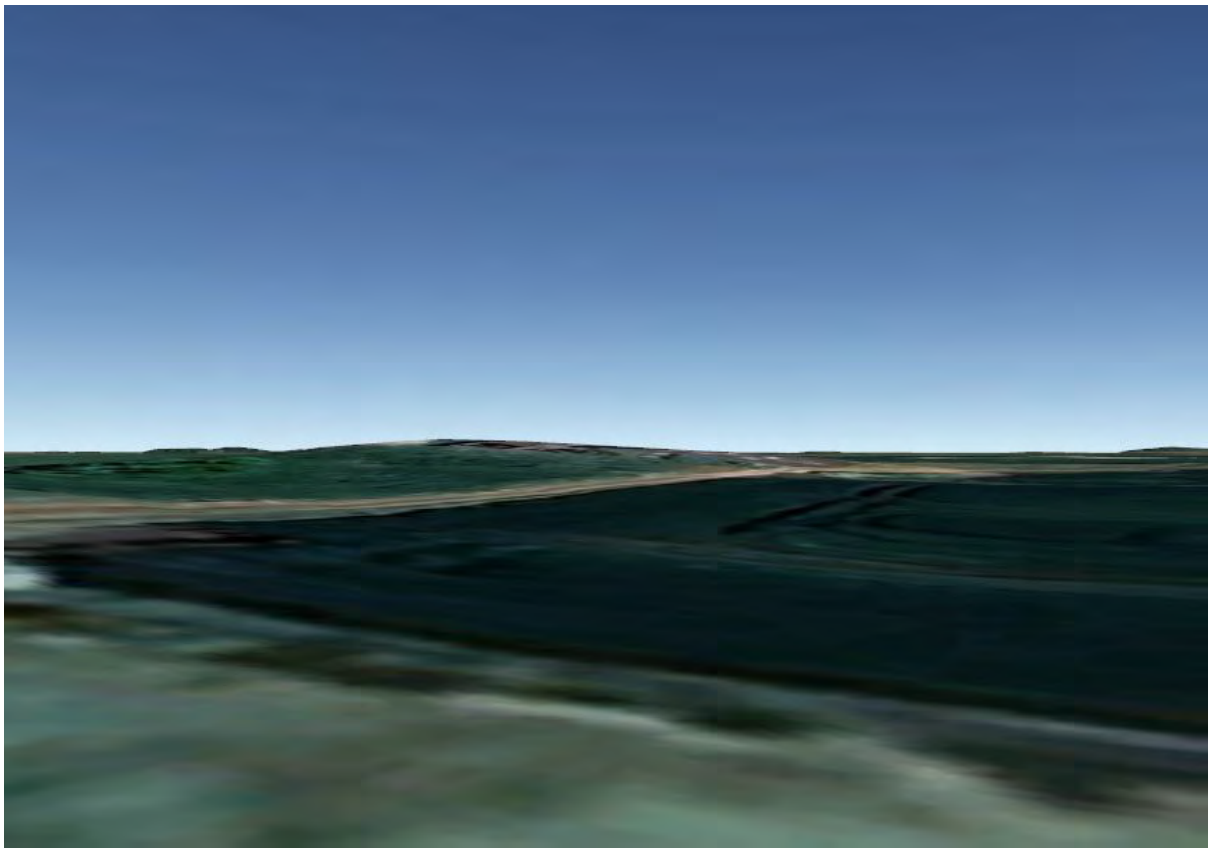
Receptor 125



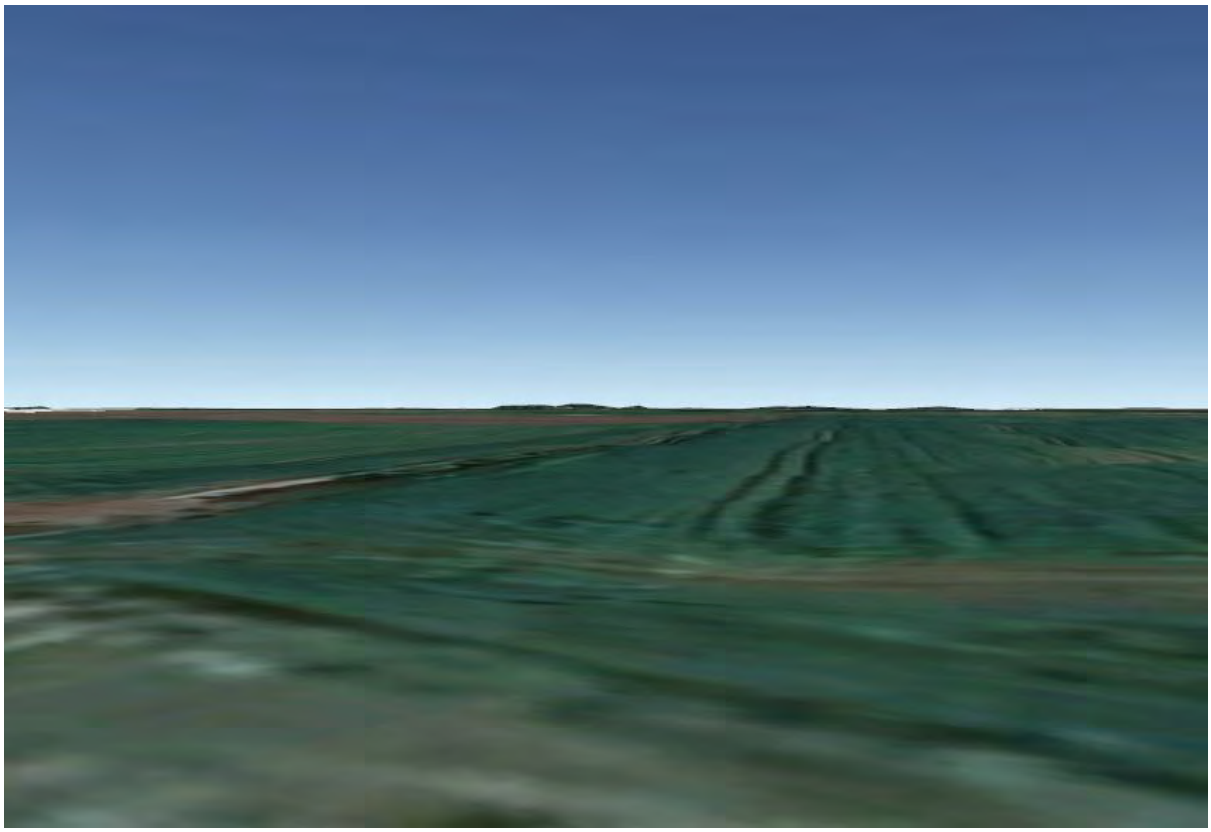
Receptor 126



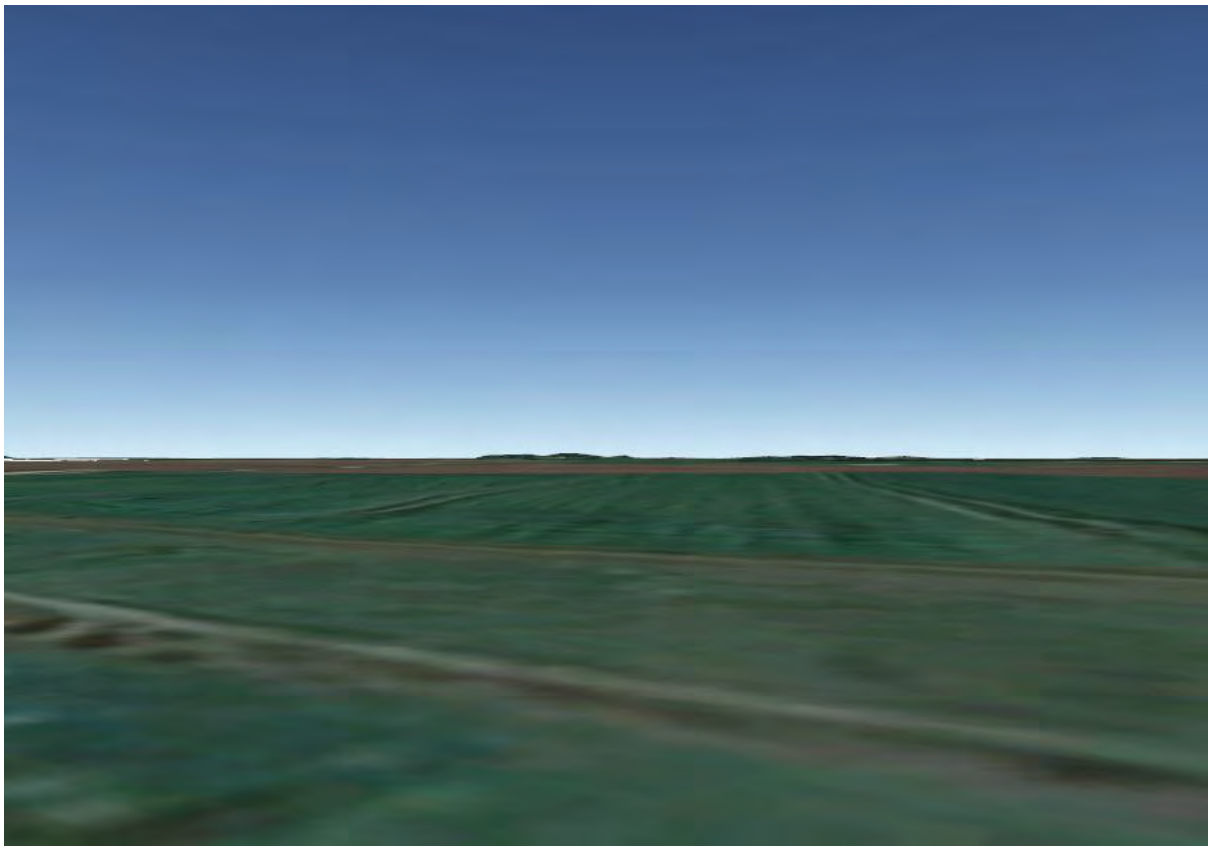
Receptor 127



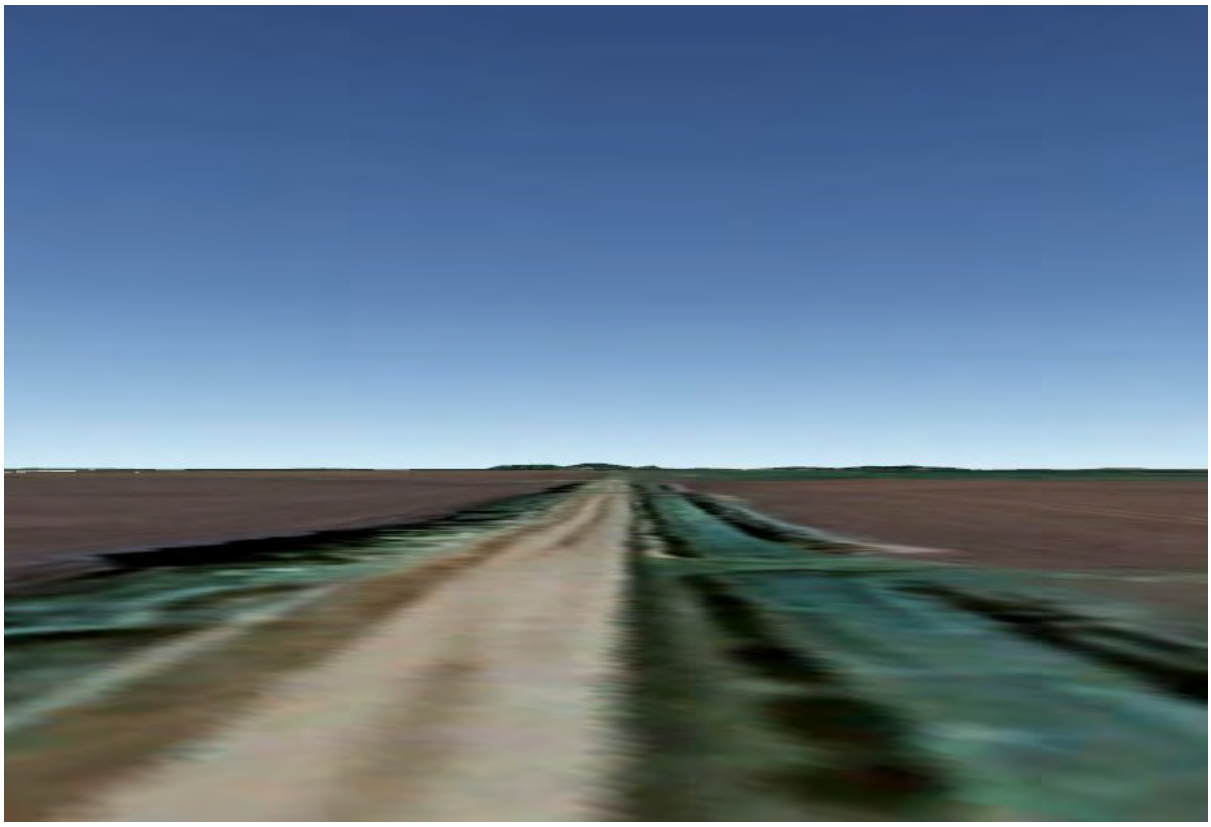
Receptor 128



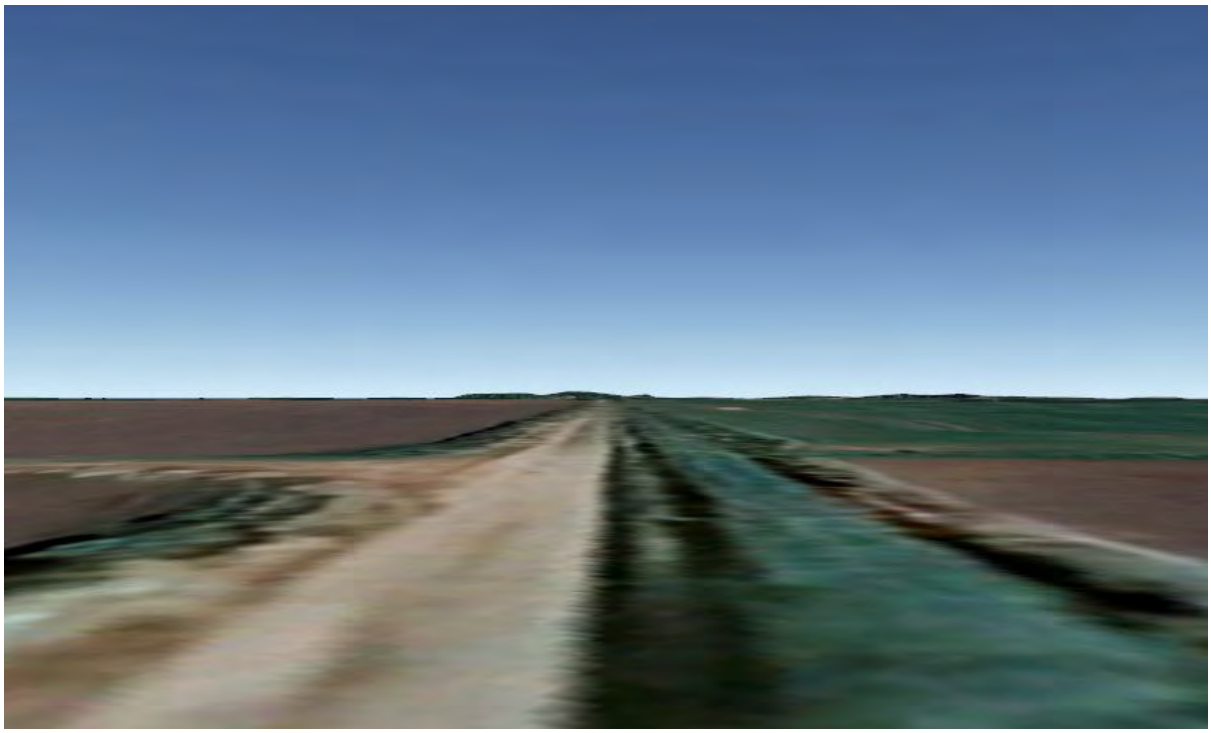
Receptor 129



Receptor 130

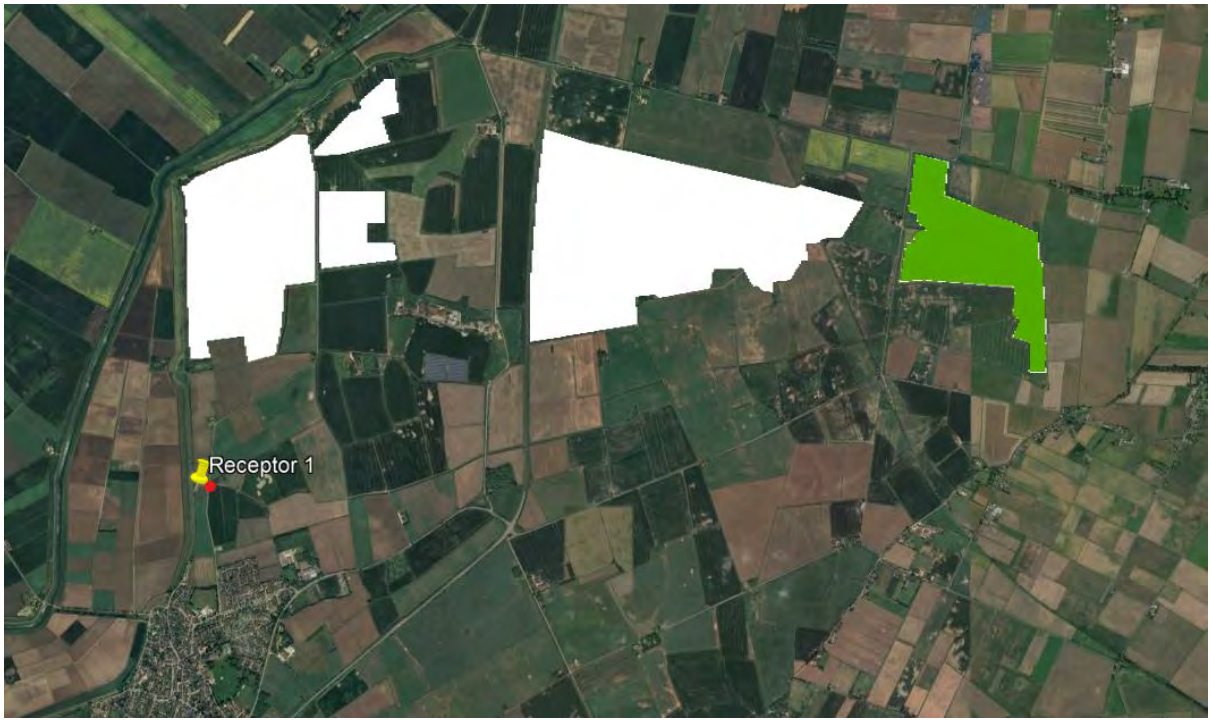


Receptor 131



West Bridleway Receptors – Land Parcels A - C

Receptor 1



Receptor 2

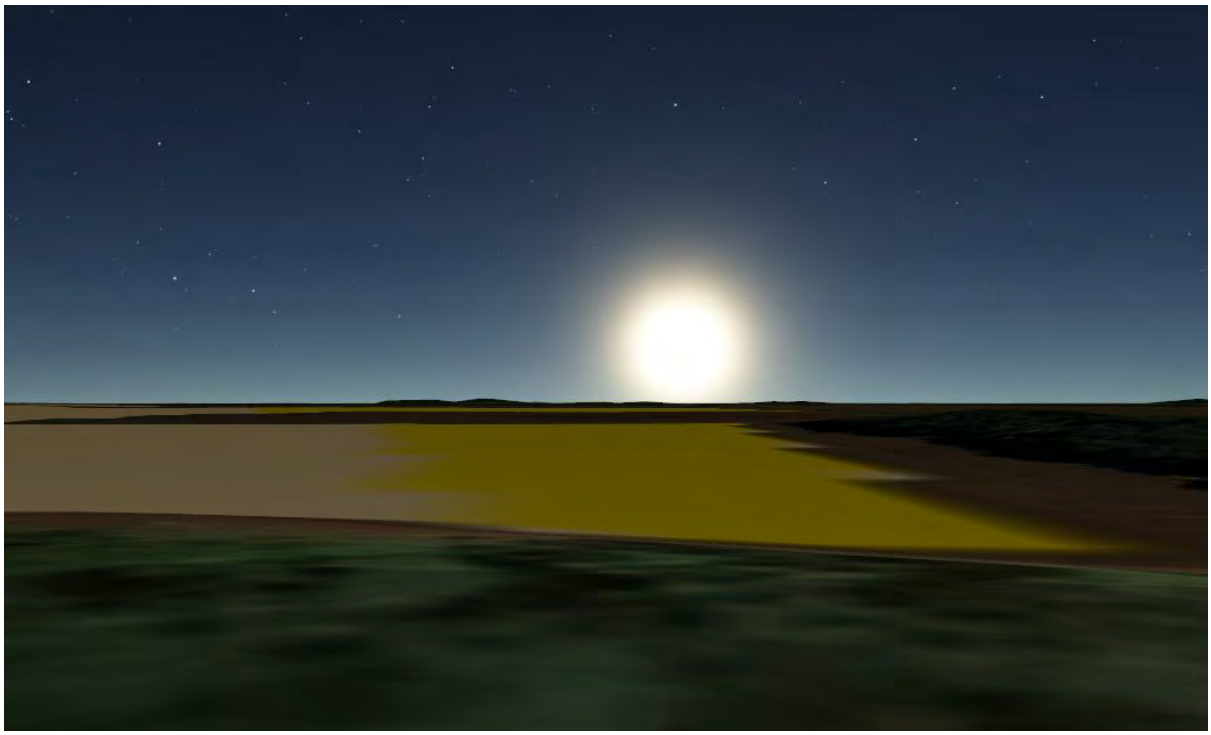
Receptor 3

Receptor 4

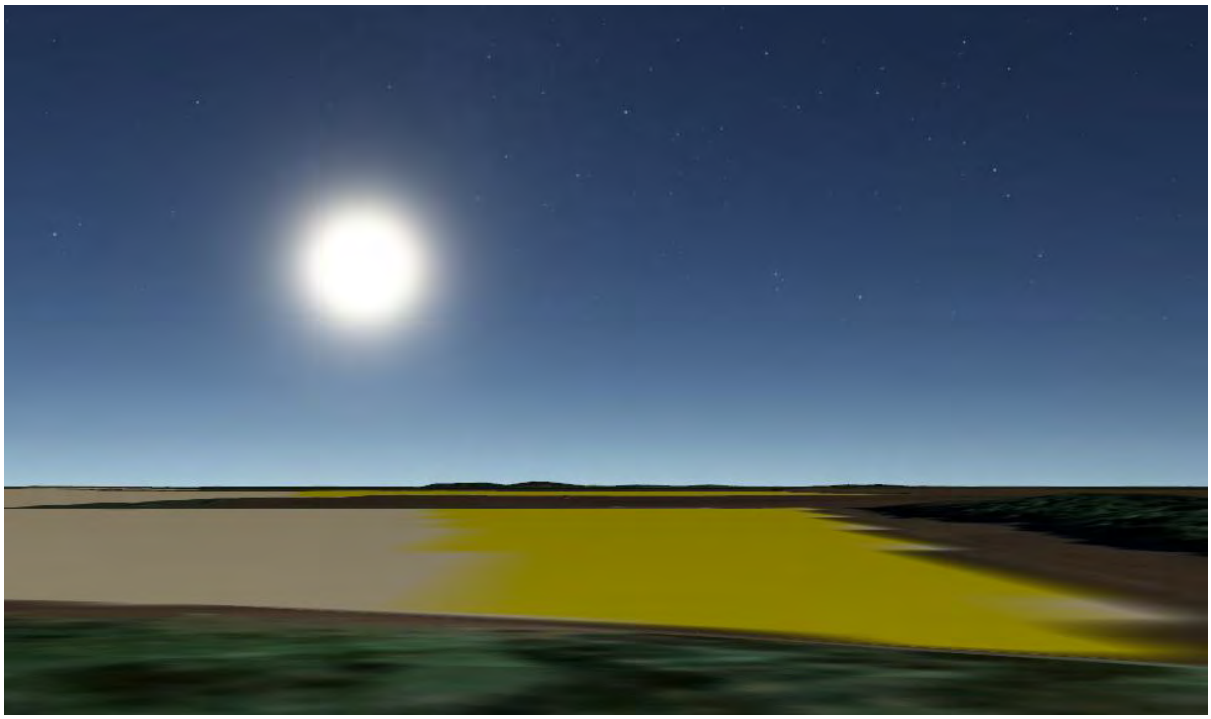
Receptor 5

Receptor 6

April 1st 06:00 UTC

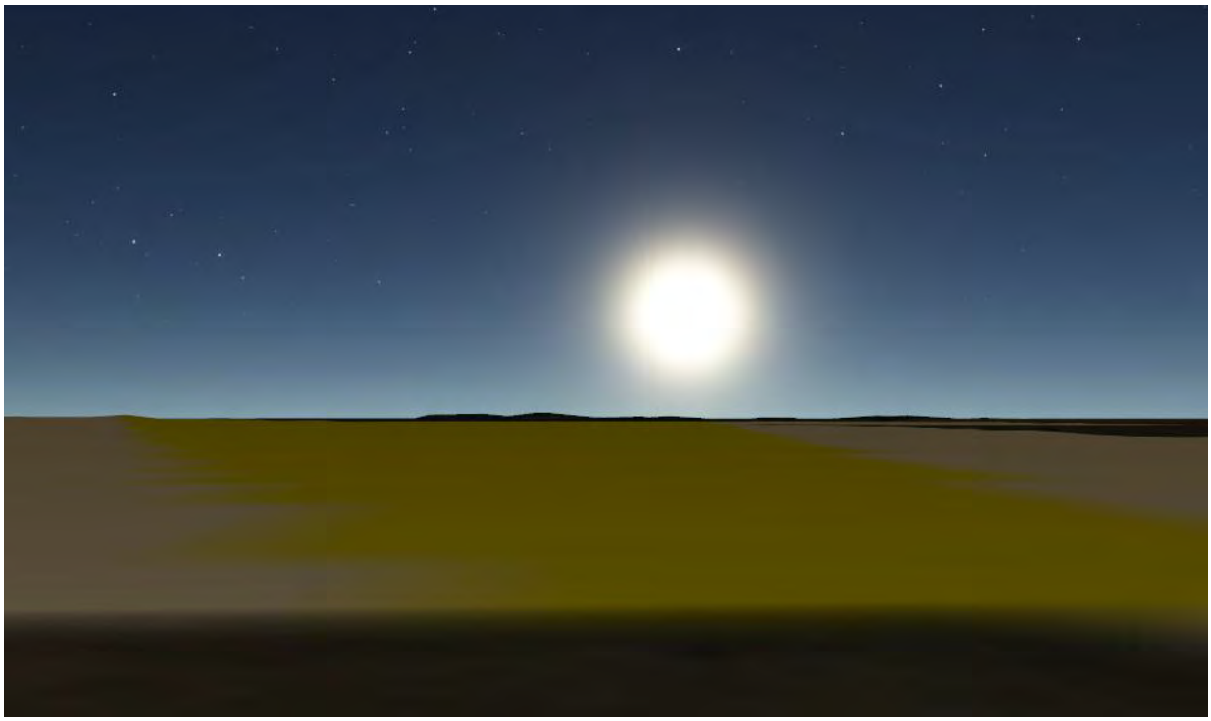


July 1st 05:15 UTC

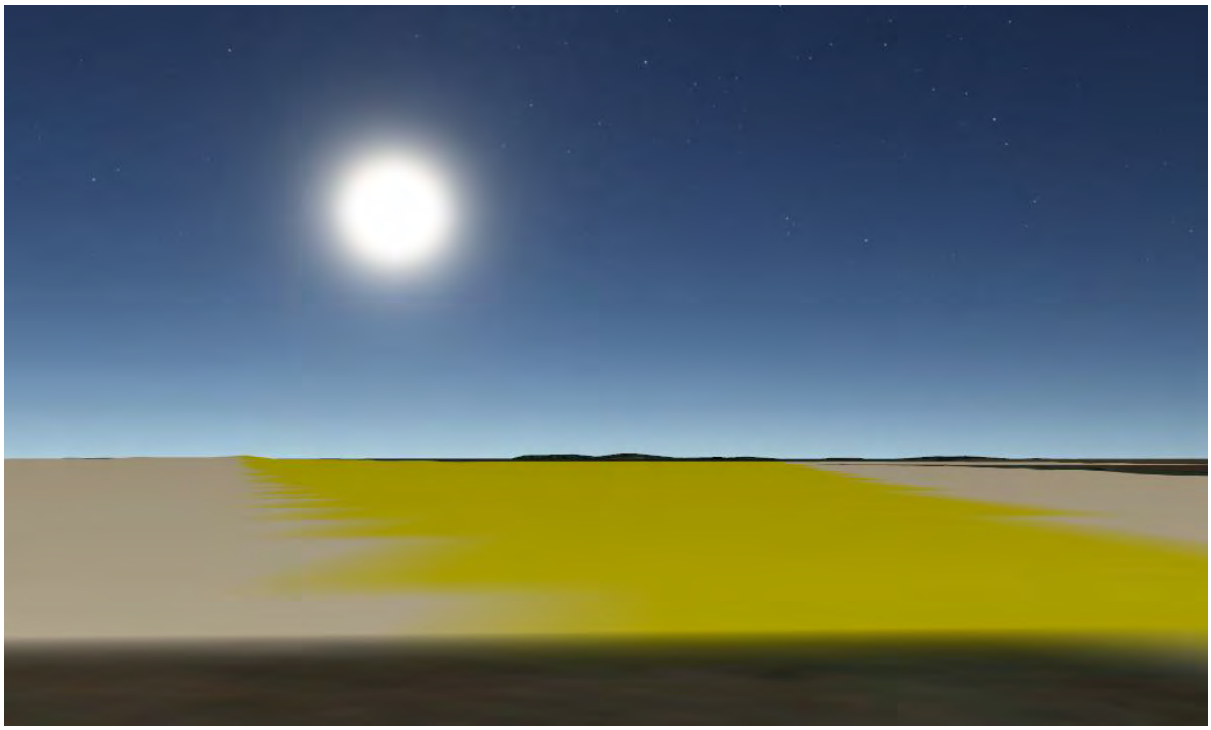


Receptor 7

April 1st 06:15 UTC

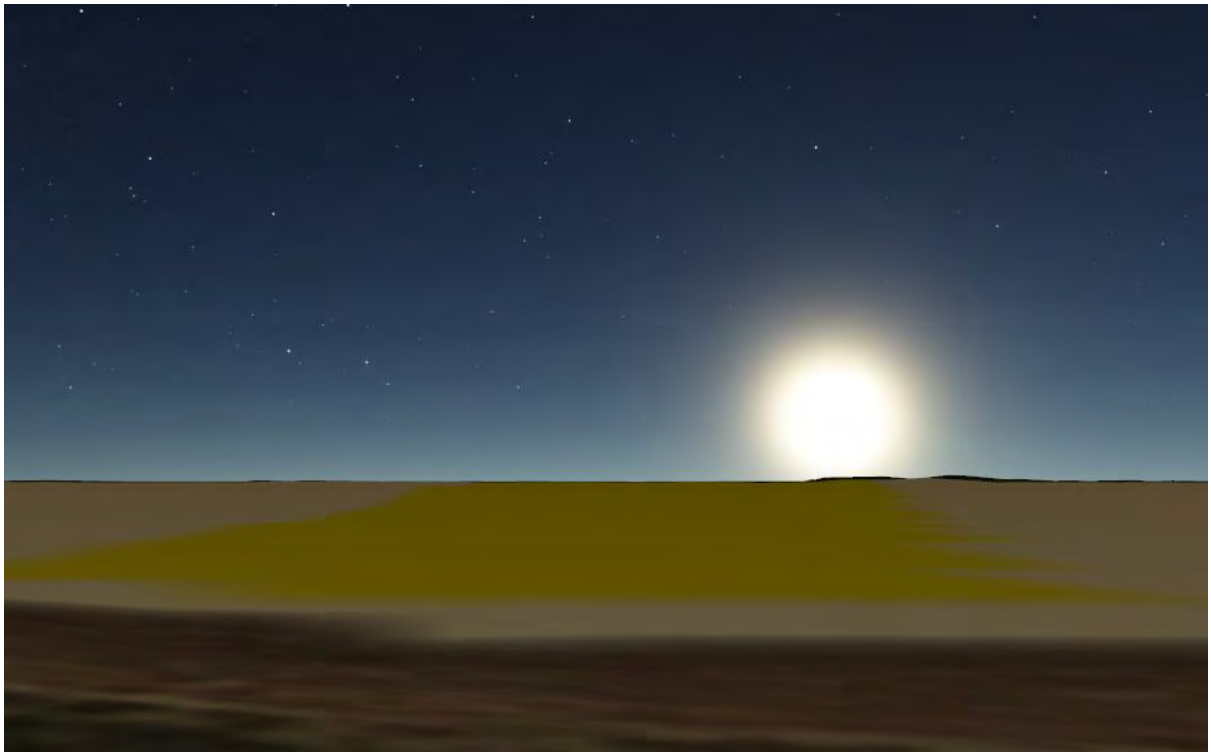


July 1st 05:30 UTC

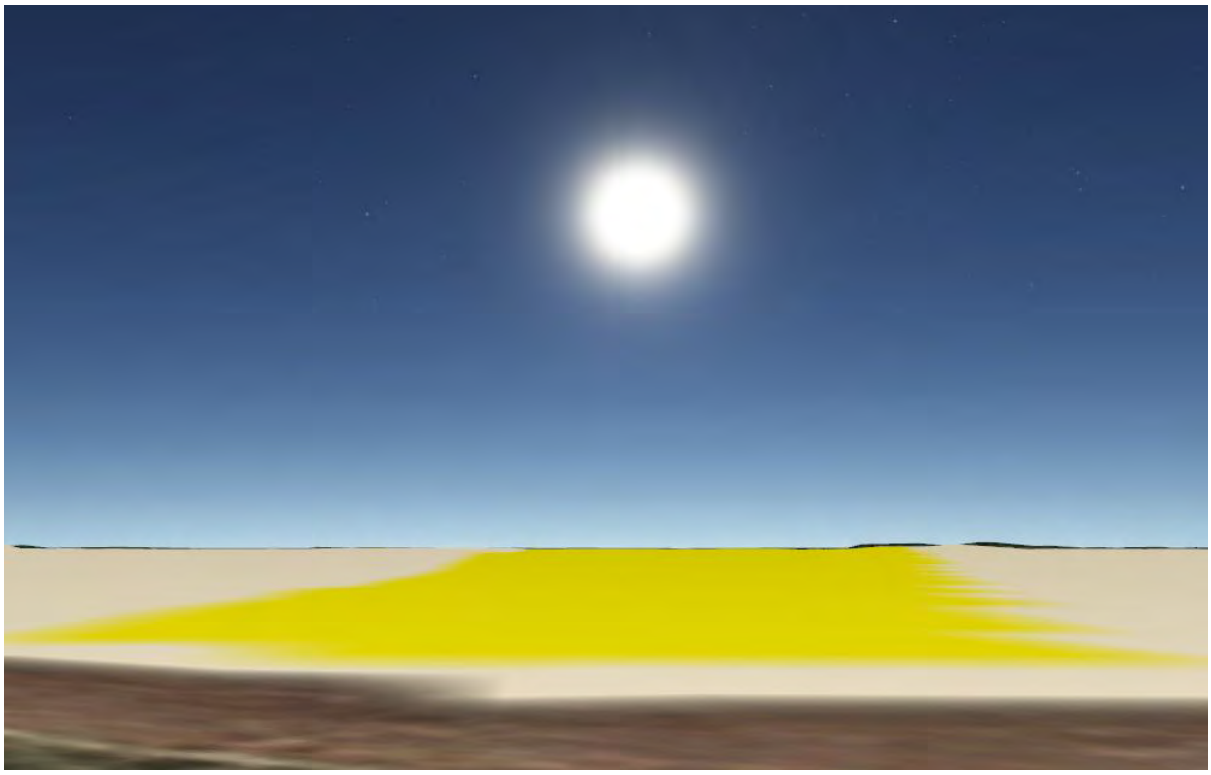


Receptor 8

April 1st 06:00 UTC

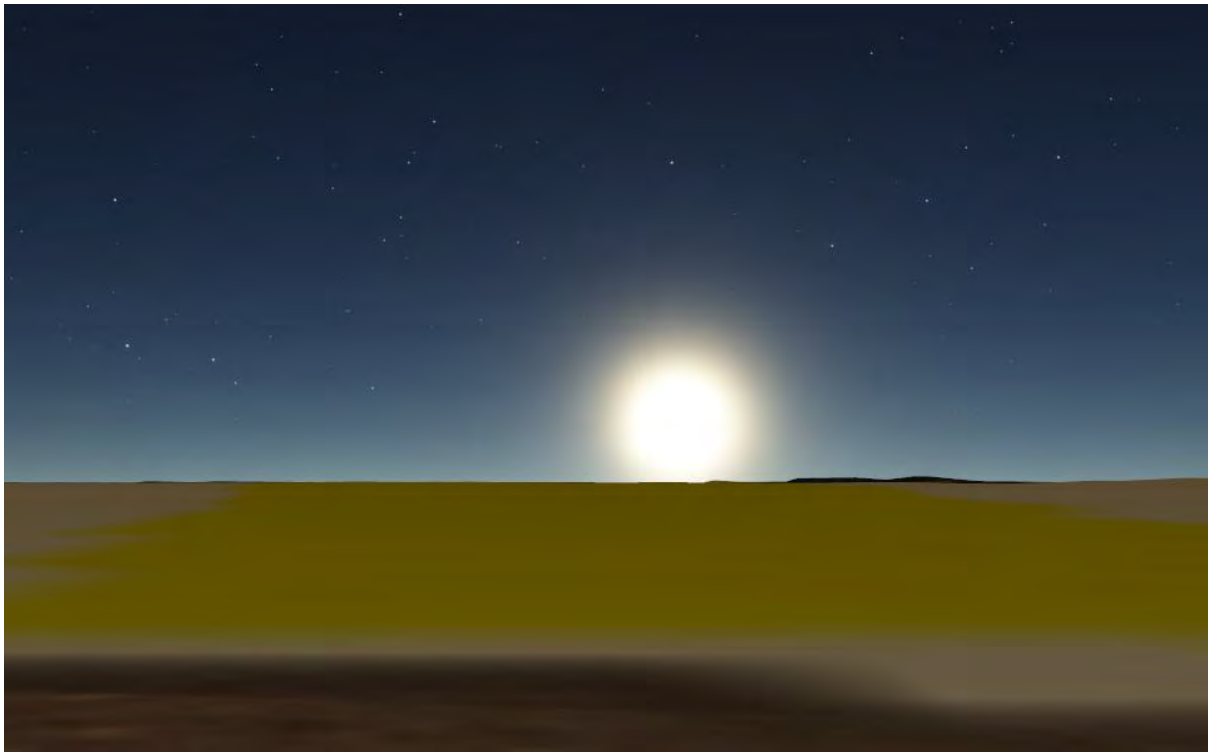


July 1st 06:00 UTC

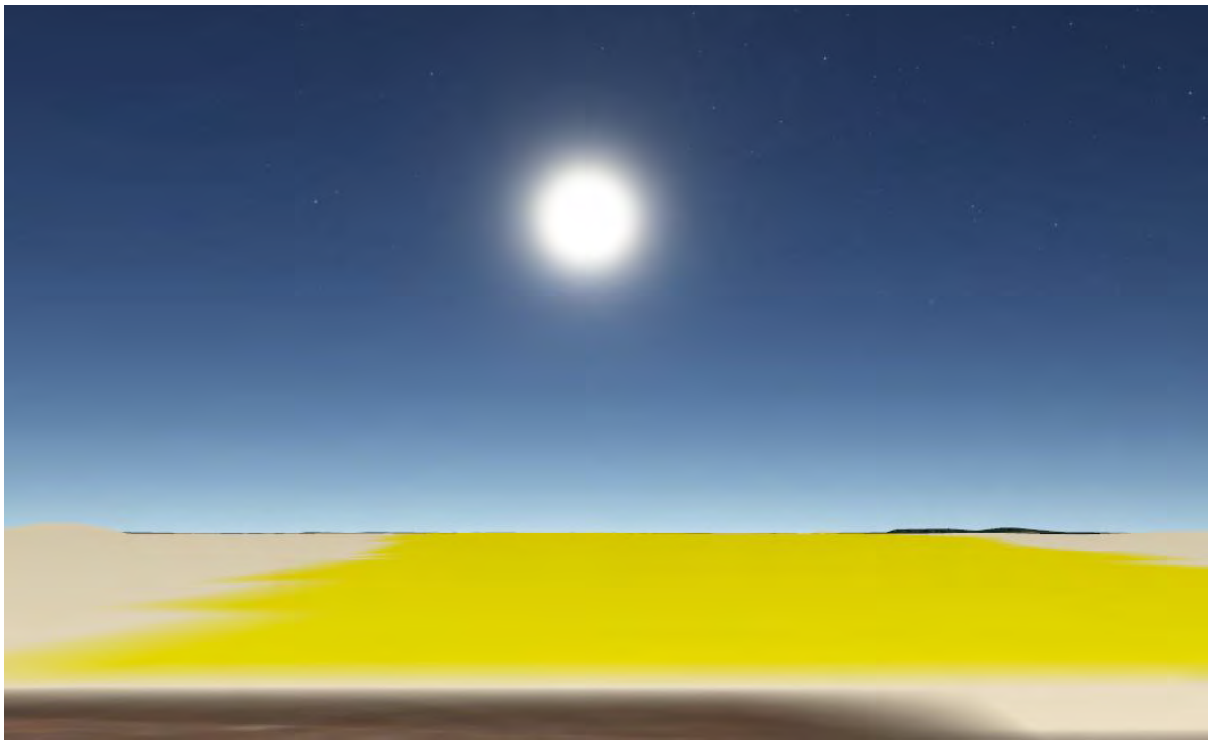


Receptor 9

April 1st 06:00 UTC

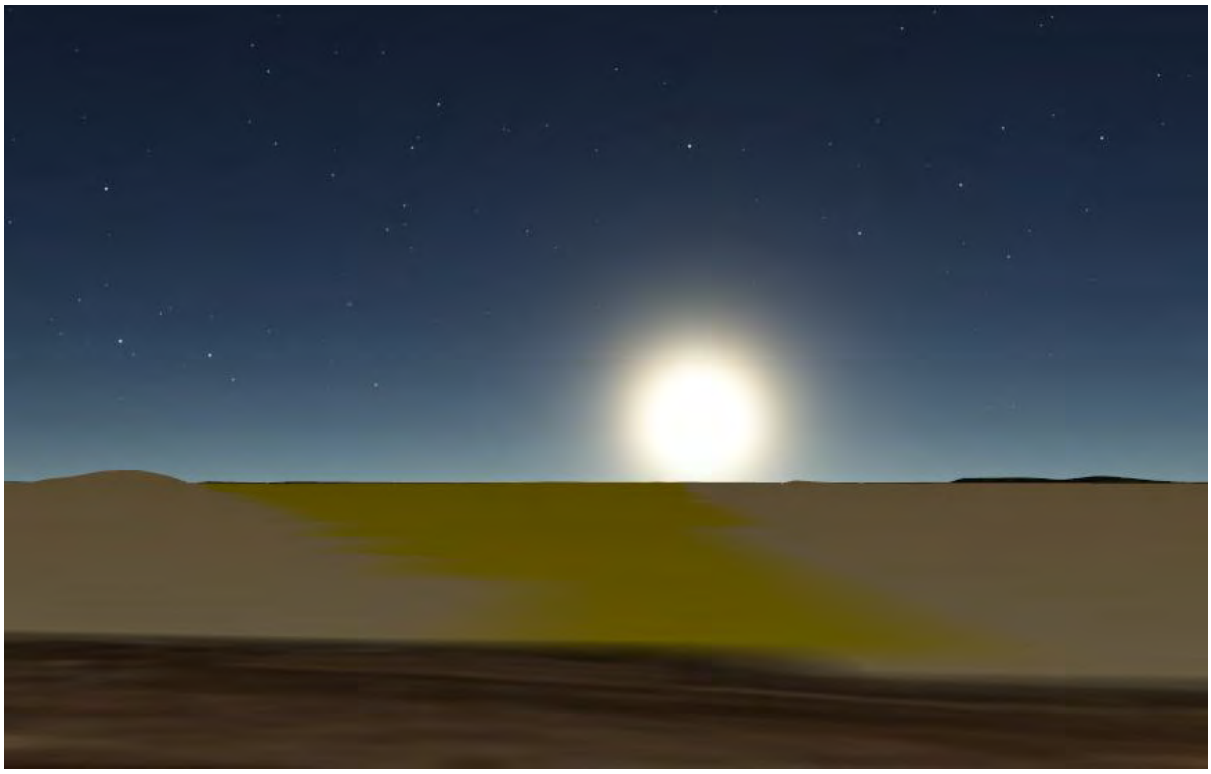


July 1st 06:00 UTC

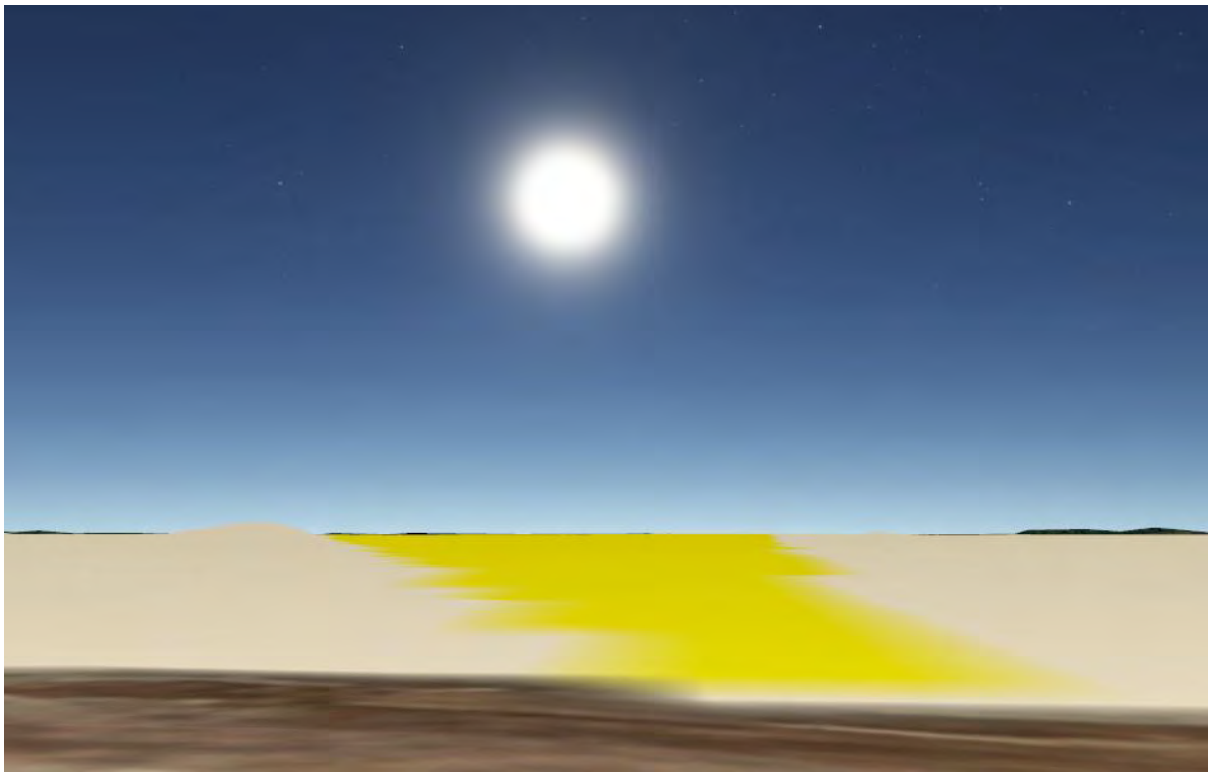


Receptor 10

April 1st 06:00 UTC

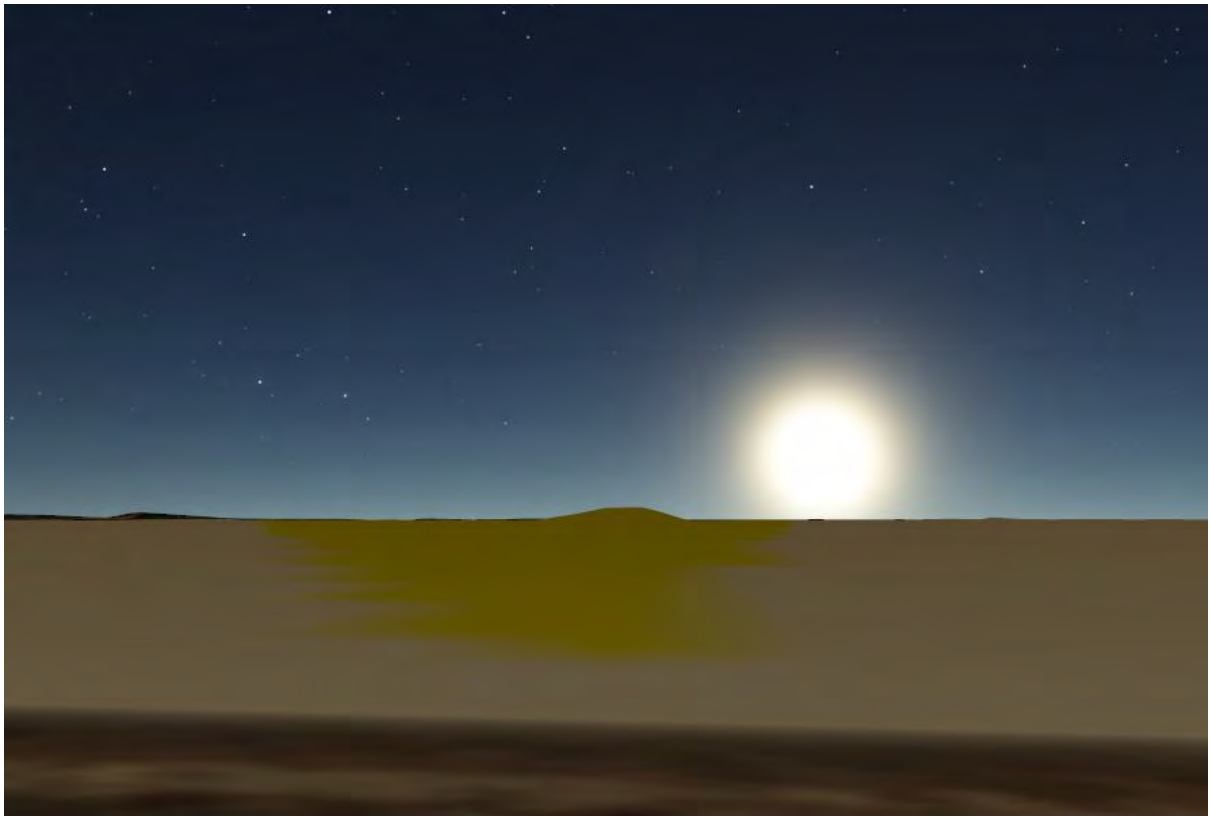


July 1st 06:00 UTC

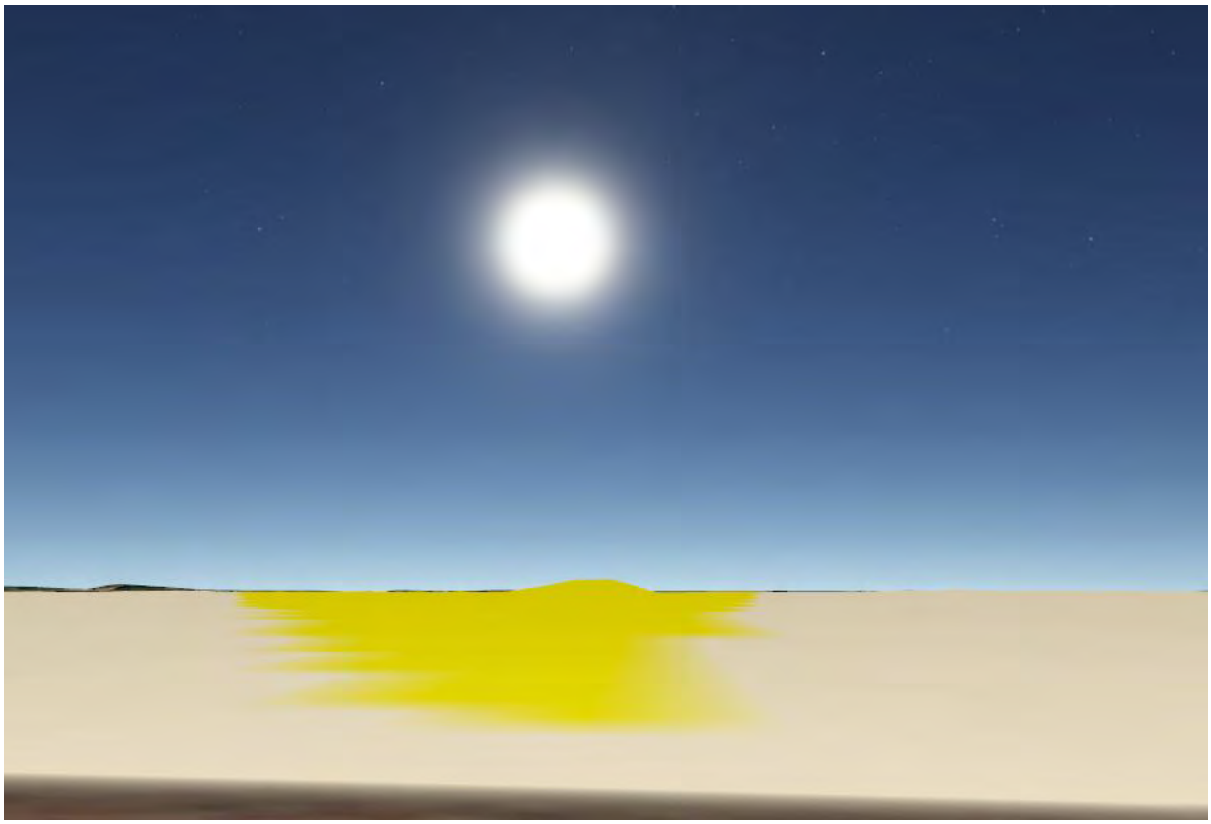


Receptor 11

April 1st 06:00 UTC

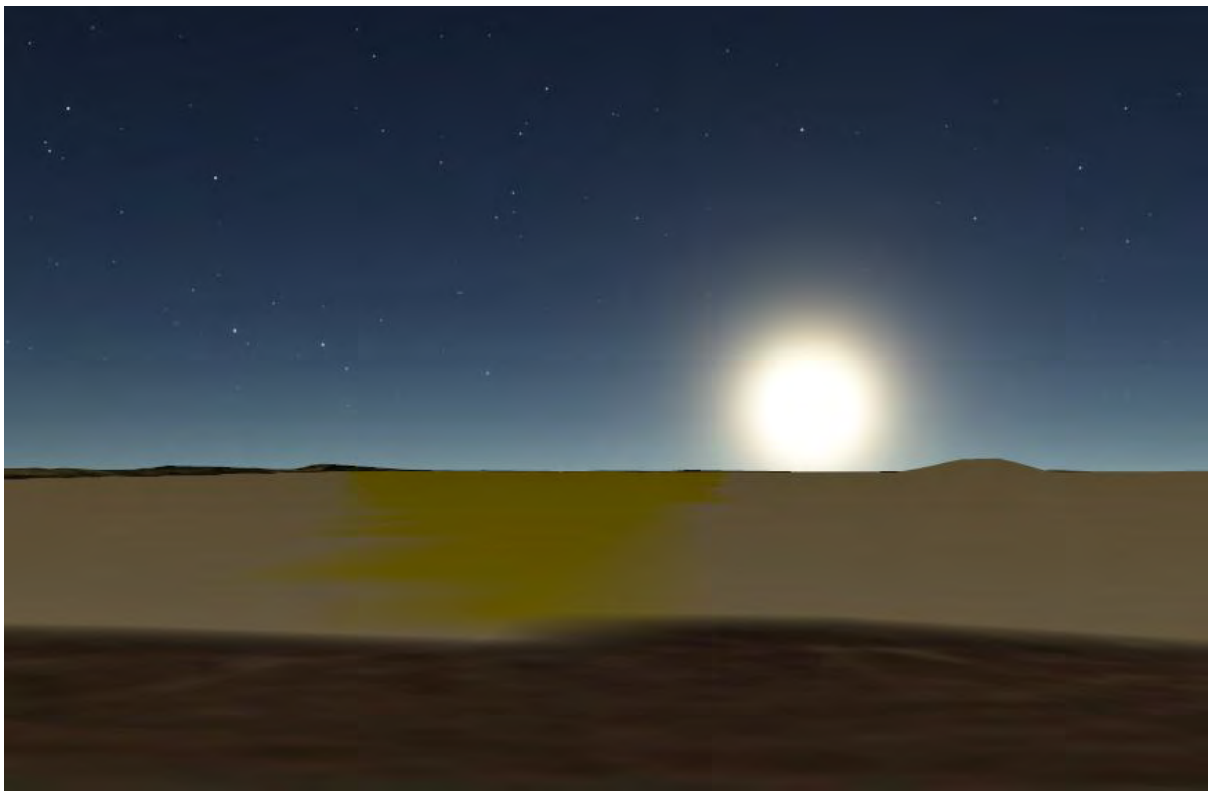


July 1st 06:00 UTC

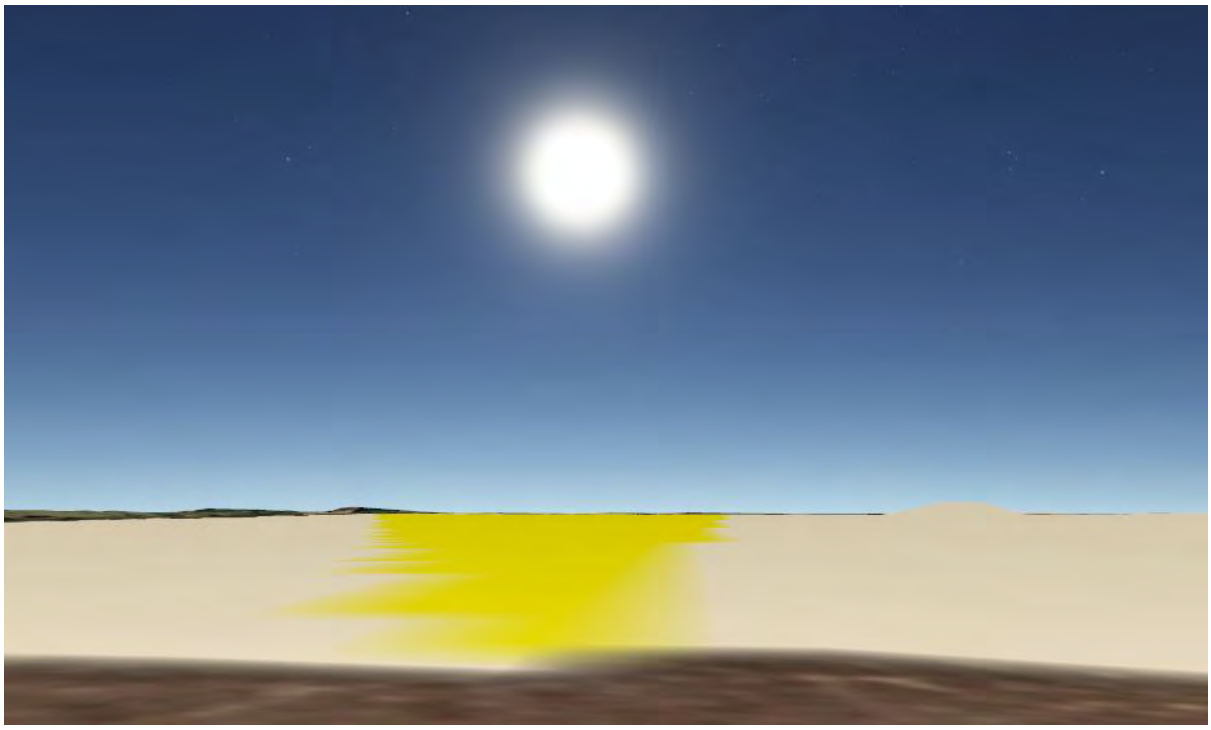


Receptor 12

April 1st 06:00 UTC

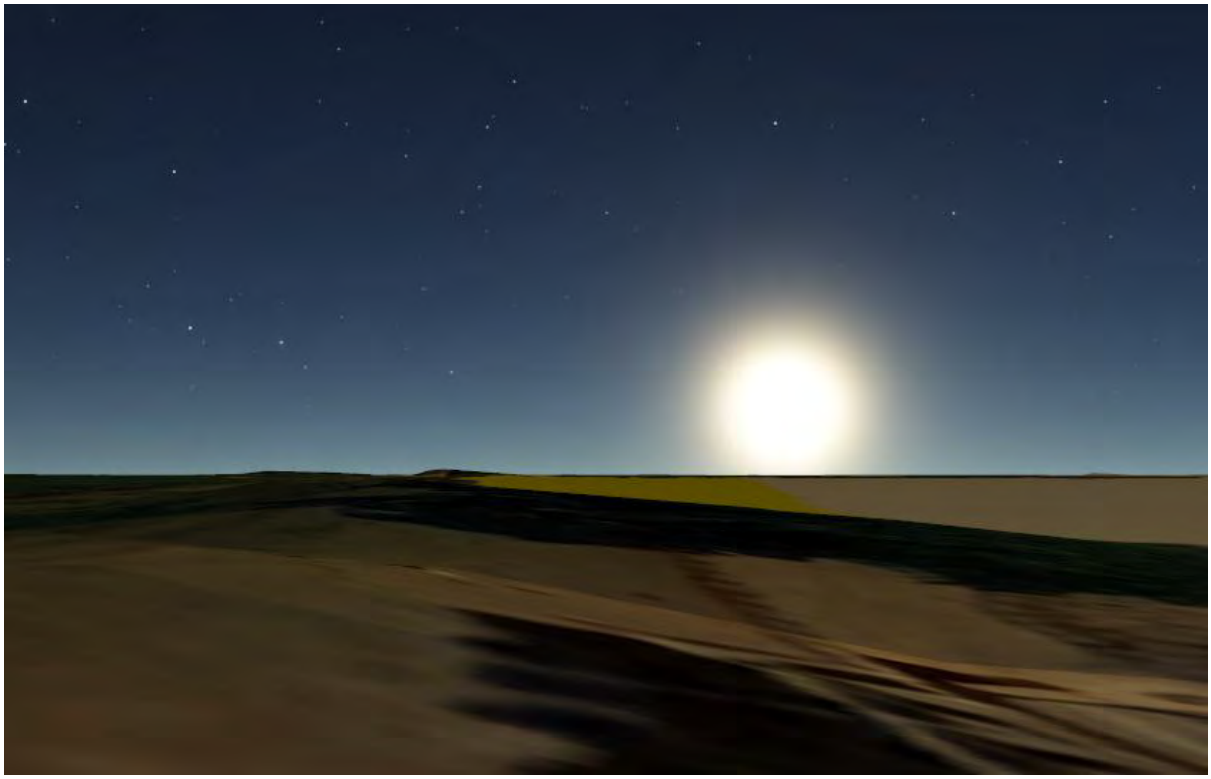


July 1st 06:00 UTC

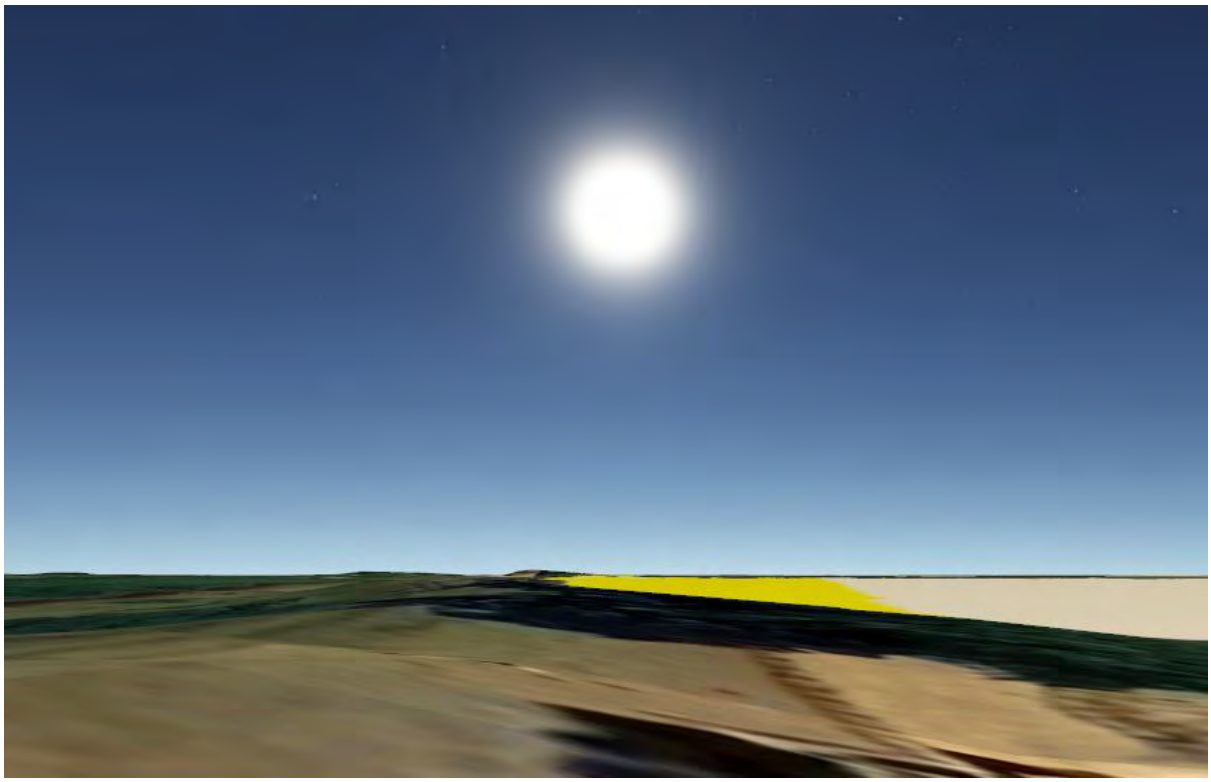


Receptor 13

April 1st 06:00 UTC

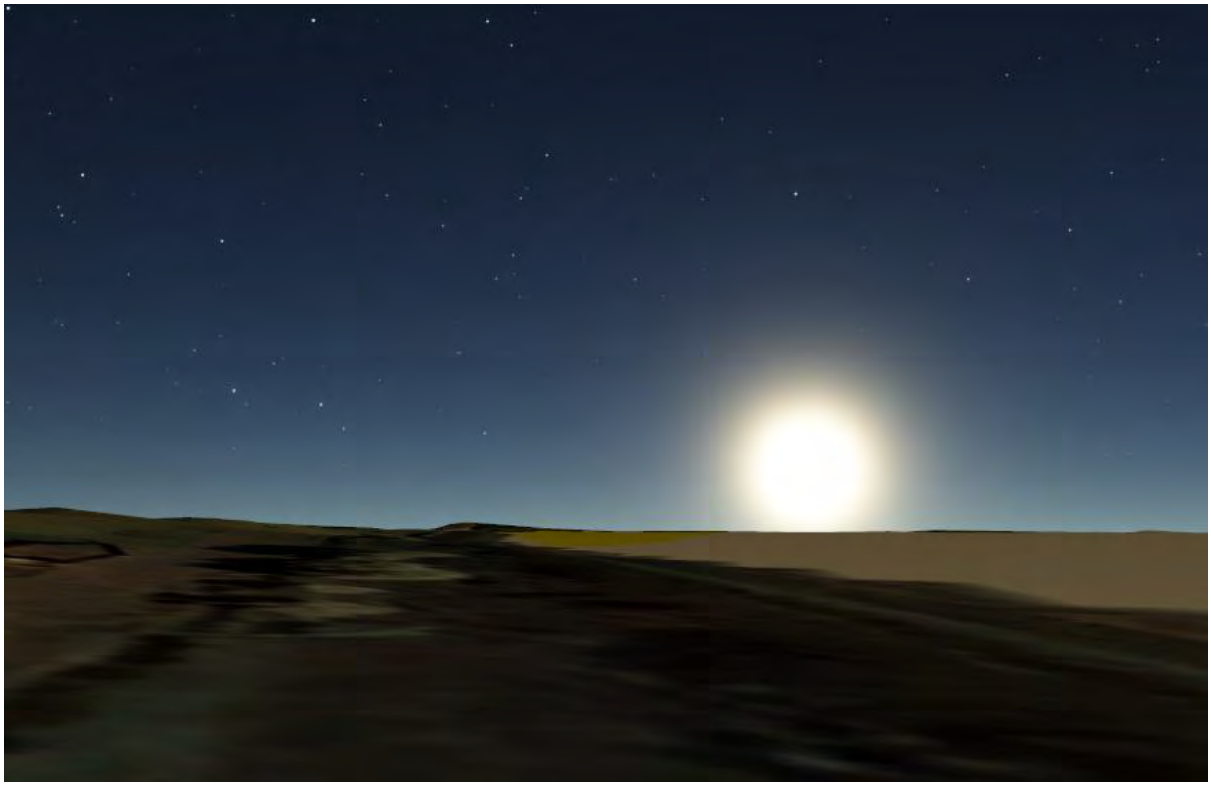


July 1st 06:00 UTC

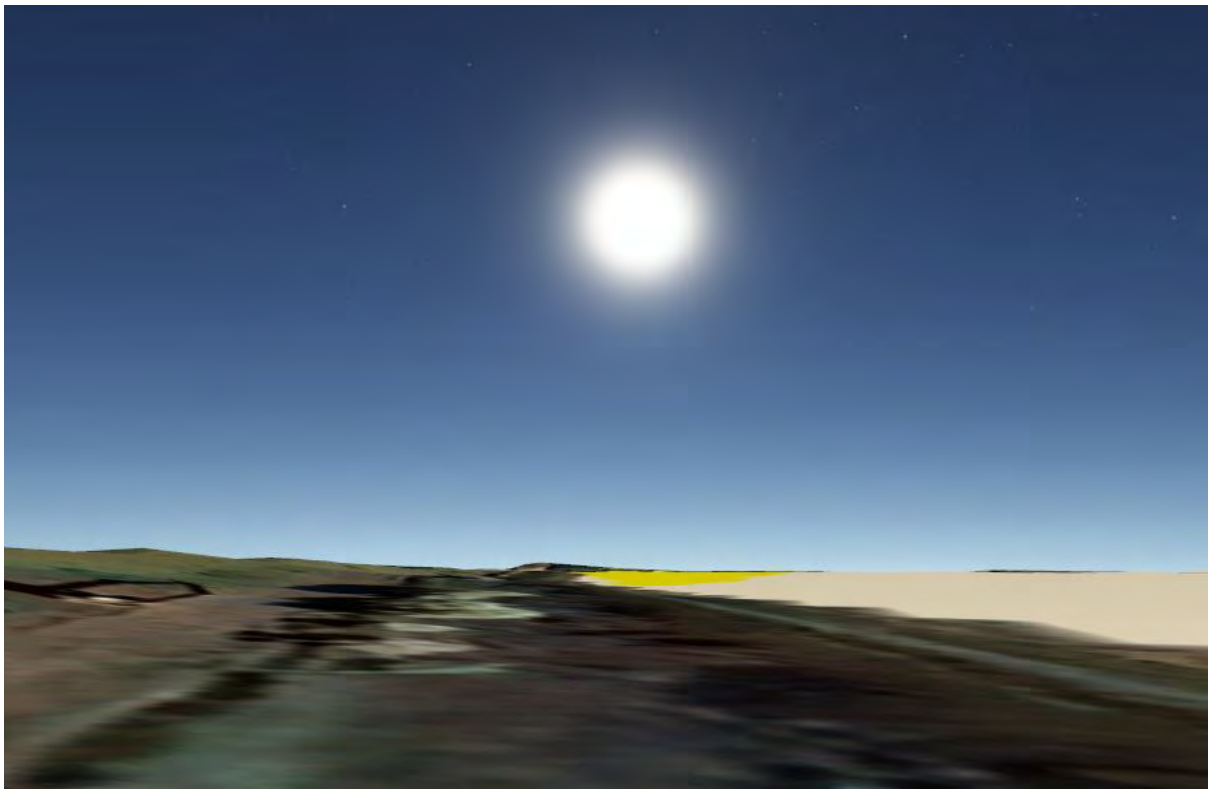


Receptor 14

April 1st 06:00 UTC

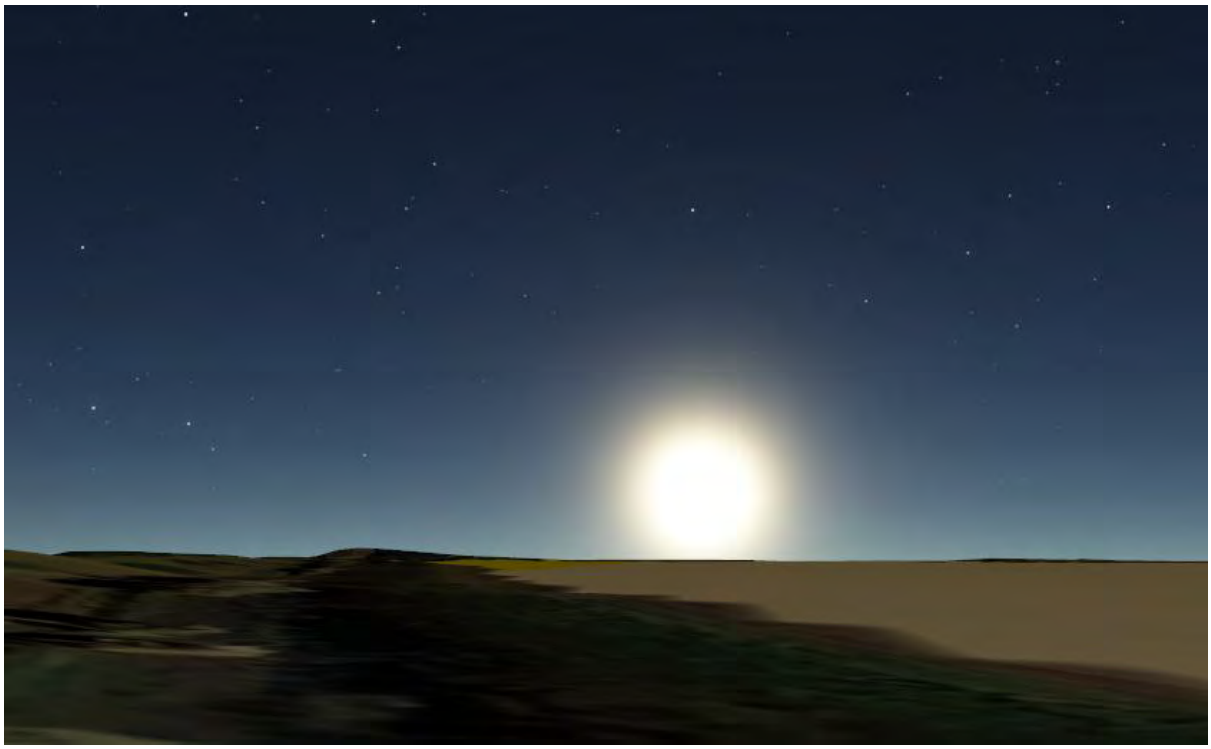


July 1st 06:00 UTC

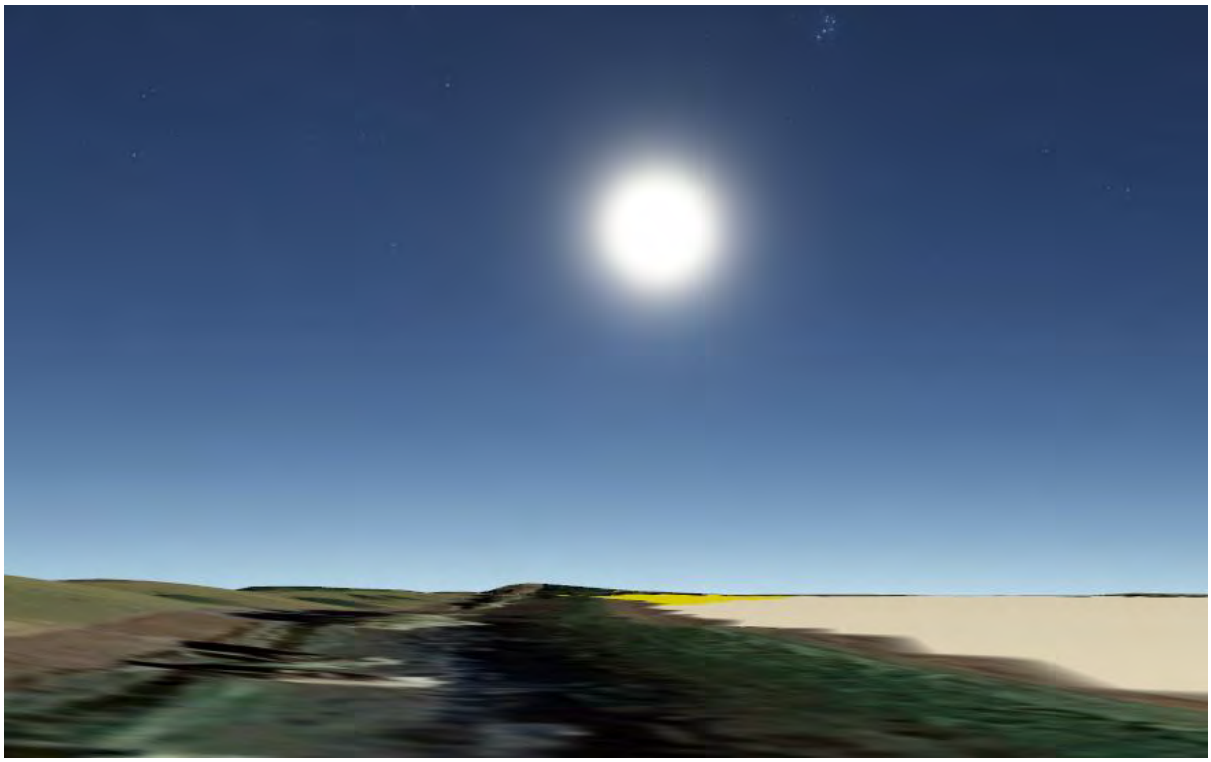


Receptor 15

April 1st 06:00 UTC



June 1st 06:00 UTC

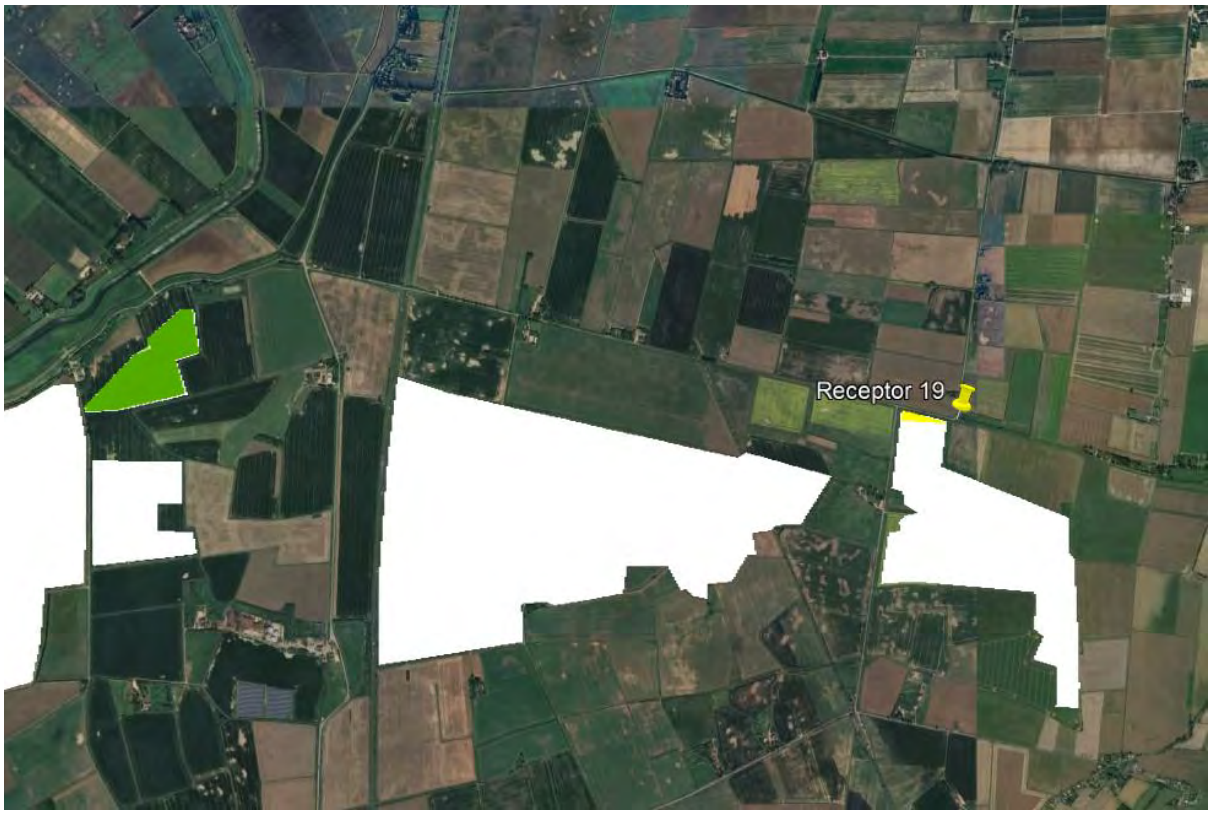


Receptor 16

Receptor 17

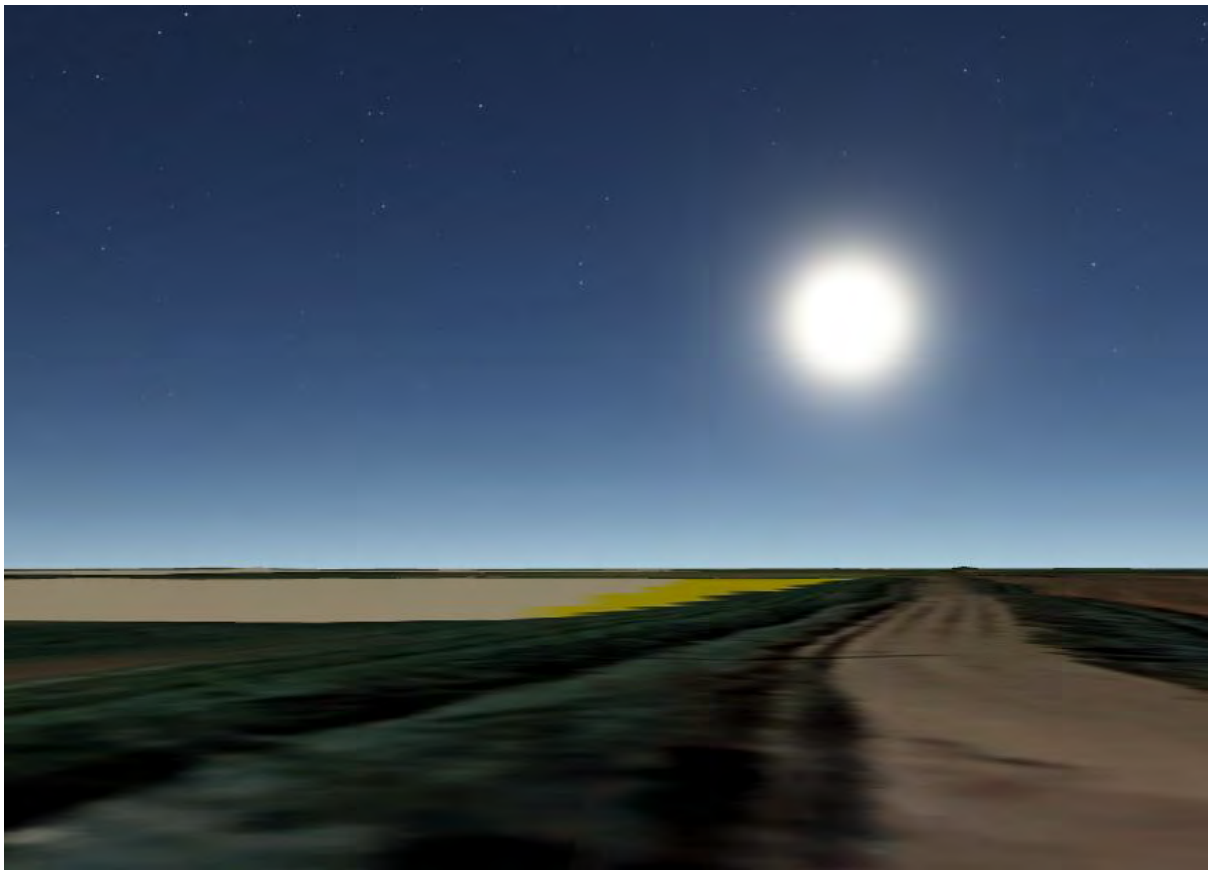
Receptor 18

Receptor 19



April 1st 18:00 UTC

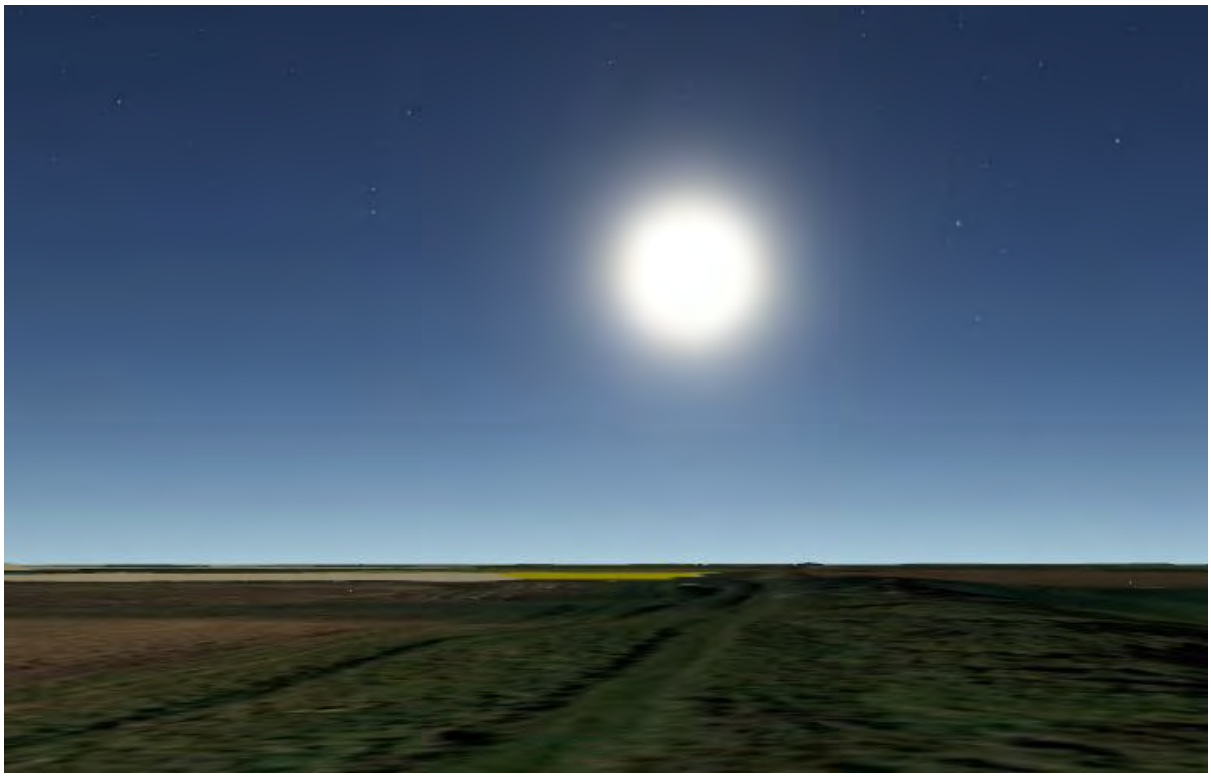
May 1st 18:00 UTC



Receptor 20

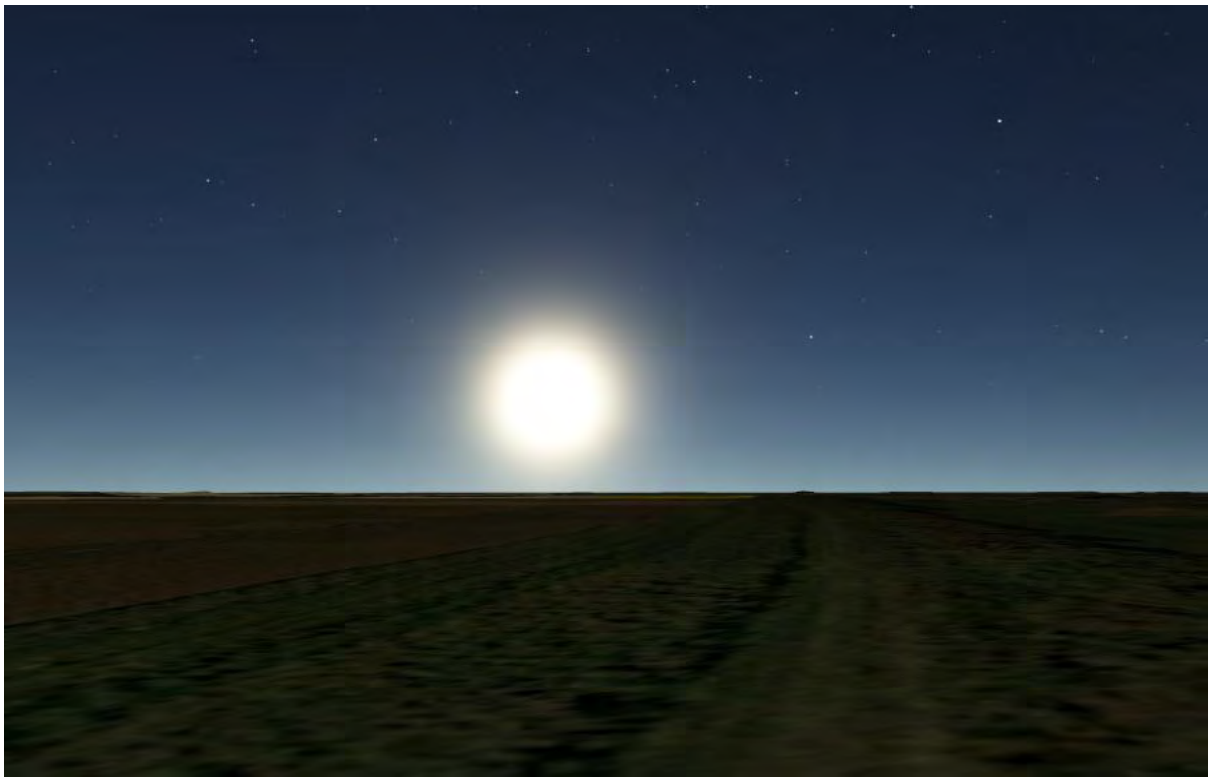
April 1st 18:00 UTC

May 1st 18:00 UTC

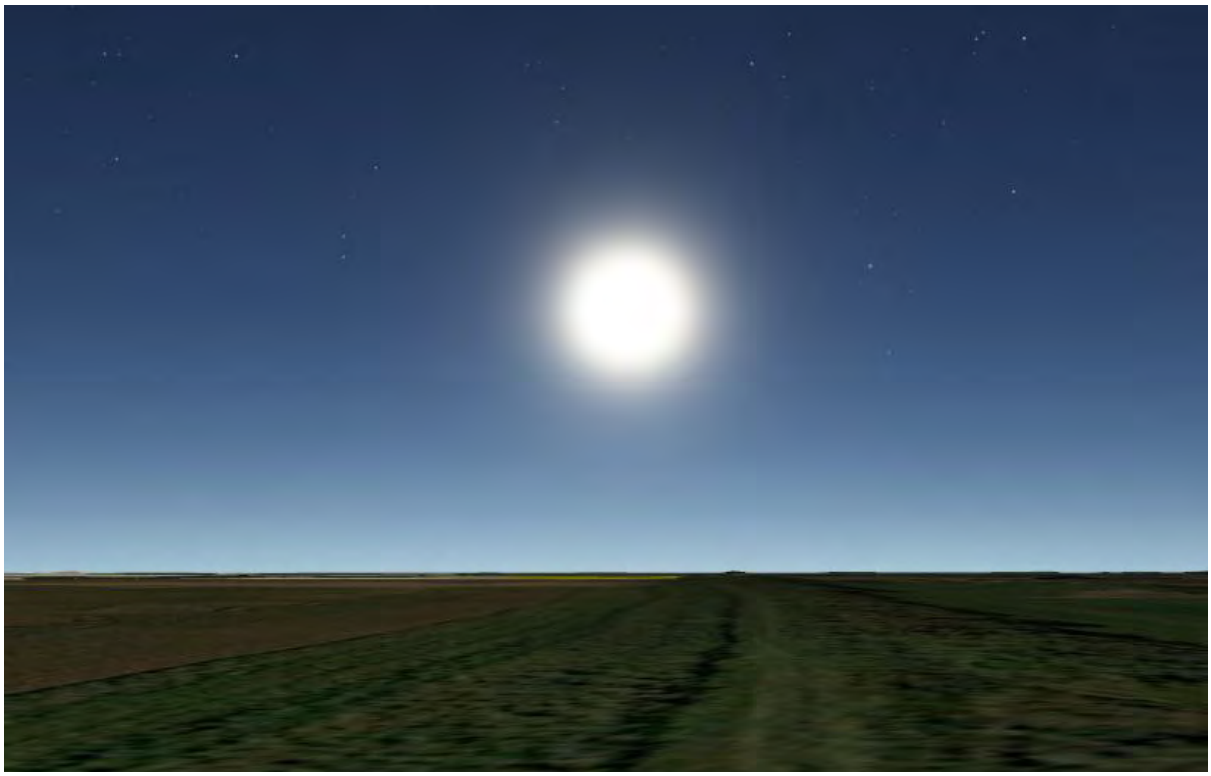


Receptor 21

April 1st 18:00 UTC

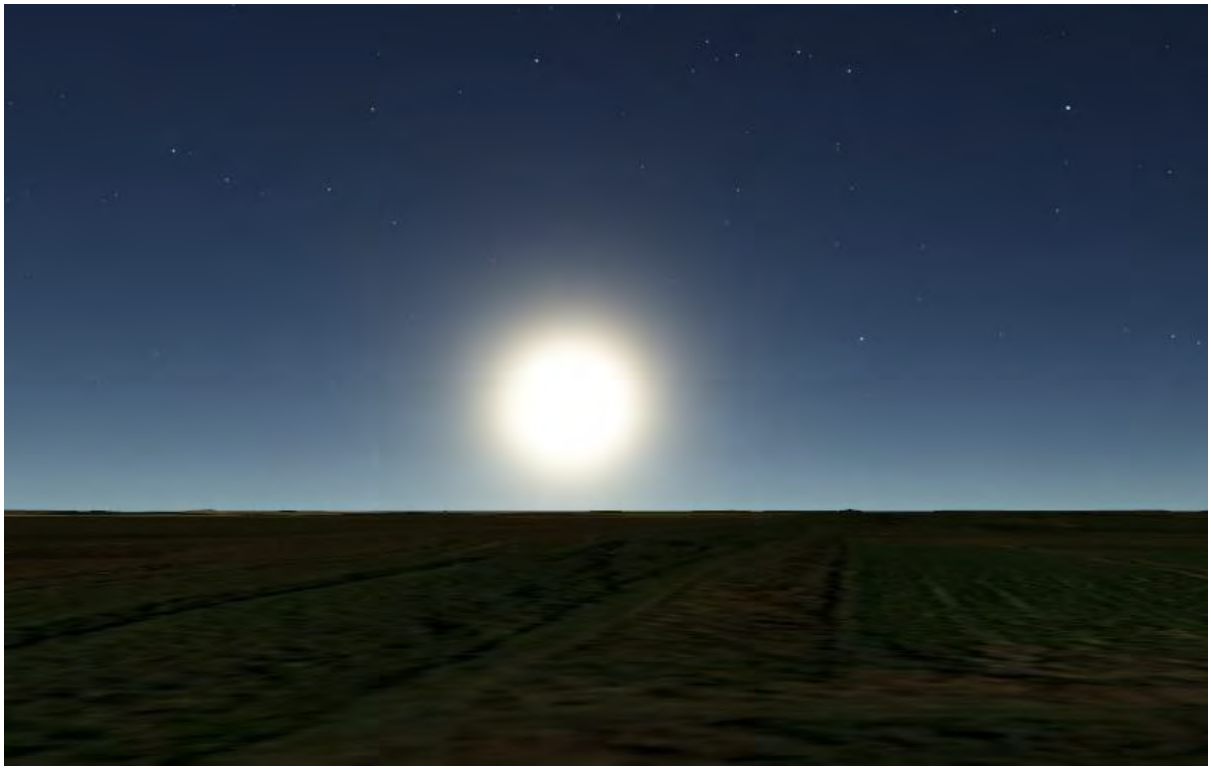


May 1st 18:00 UTC

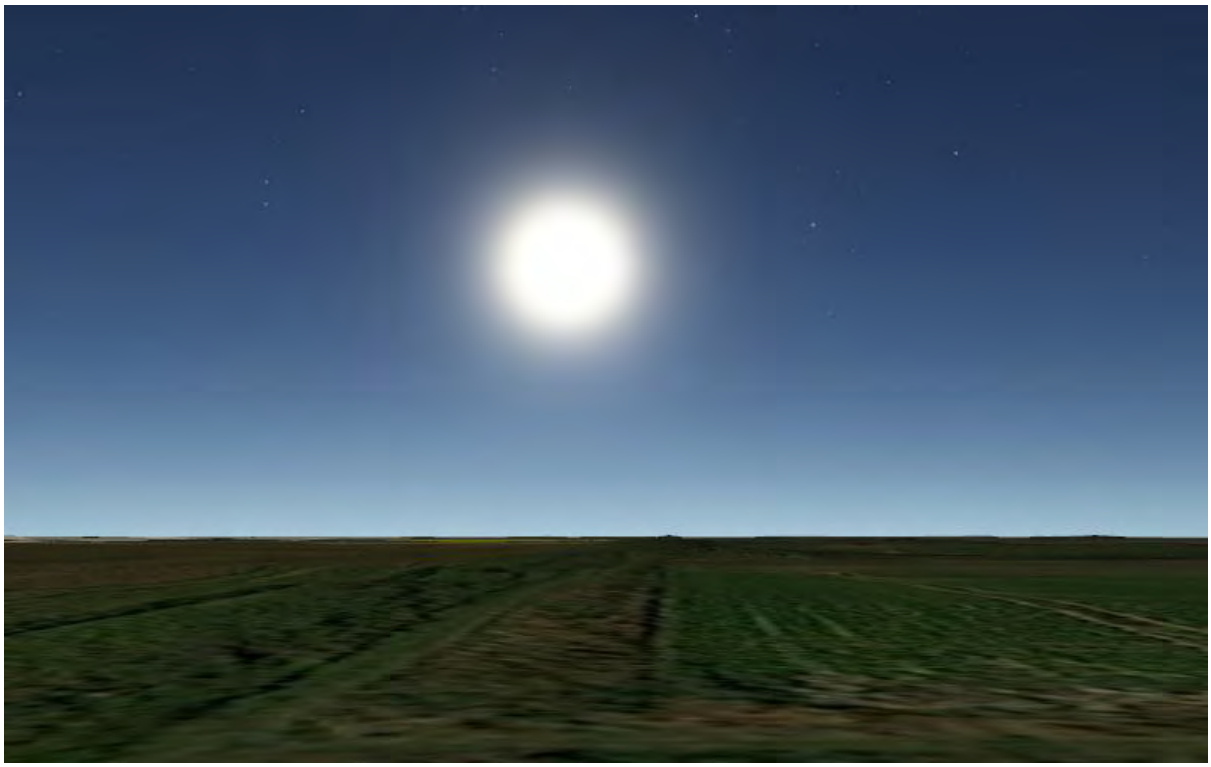


Receptor 22

April 1st 18:00 UTC

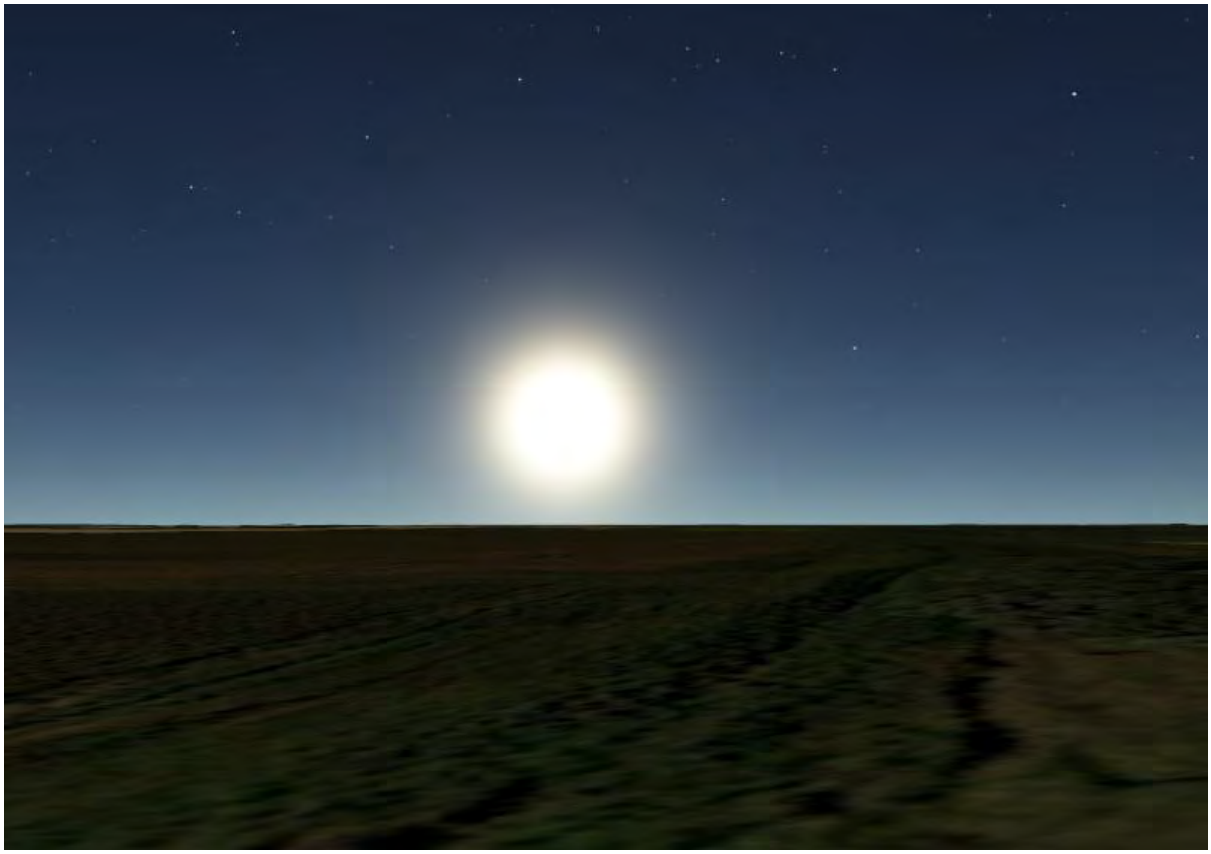


May 1st 18:00 UTC

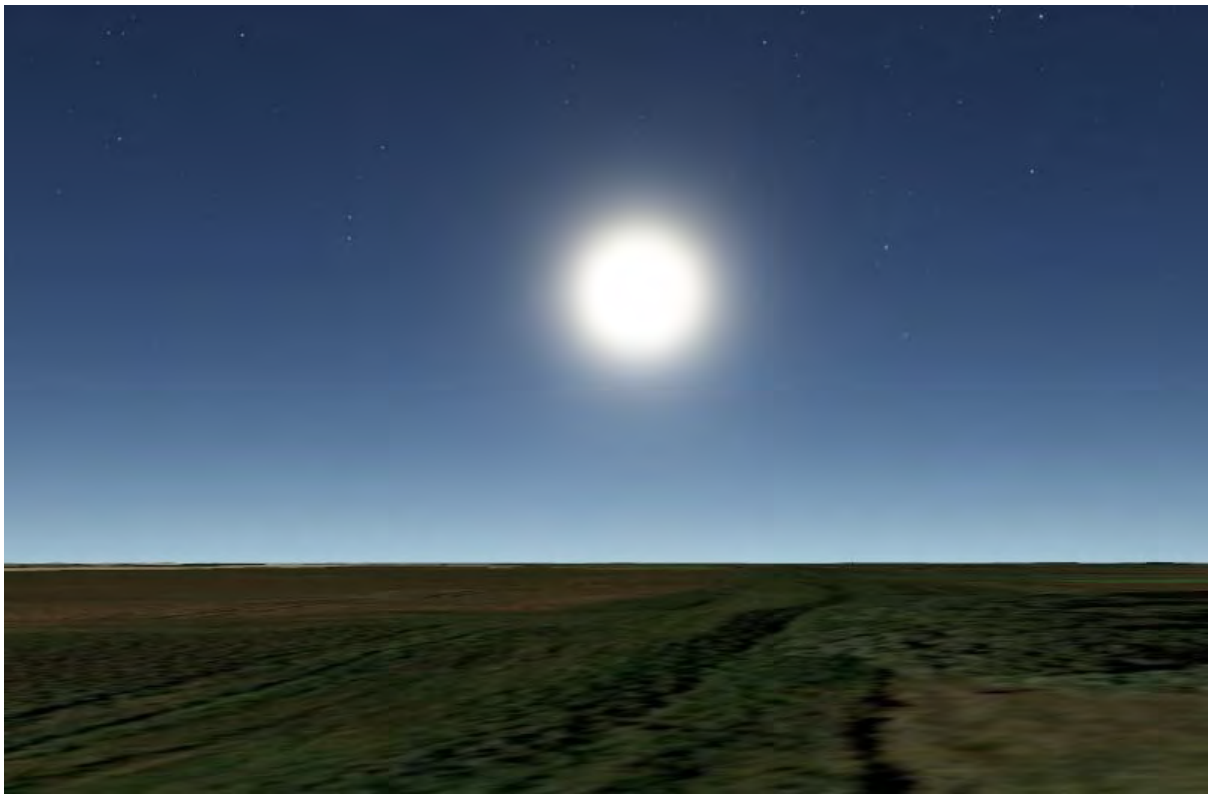


Receptor 23

April 1st 18:00 UTC

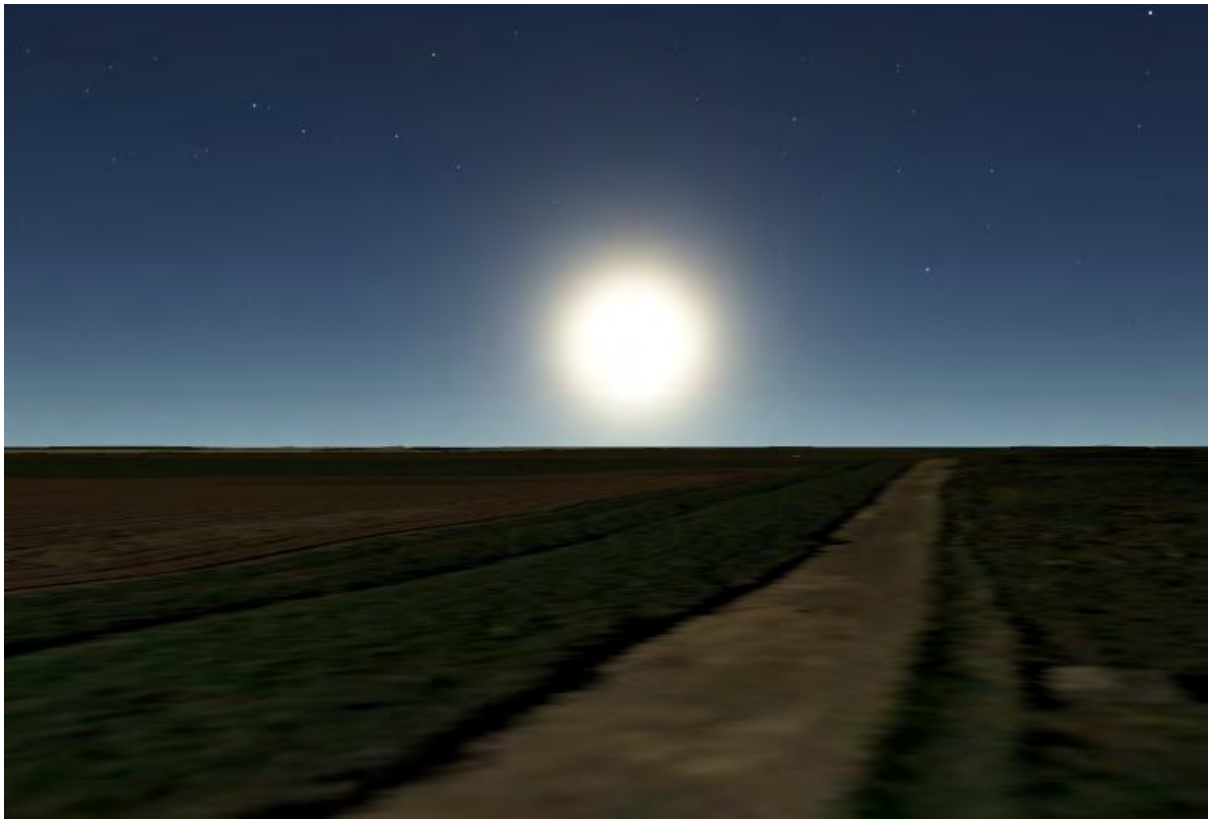


May 1st 18:00UTC

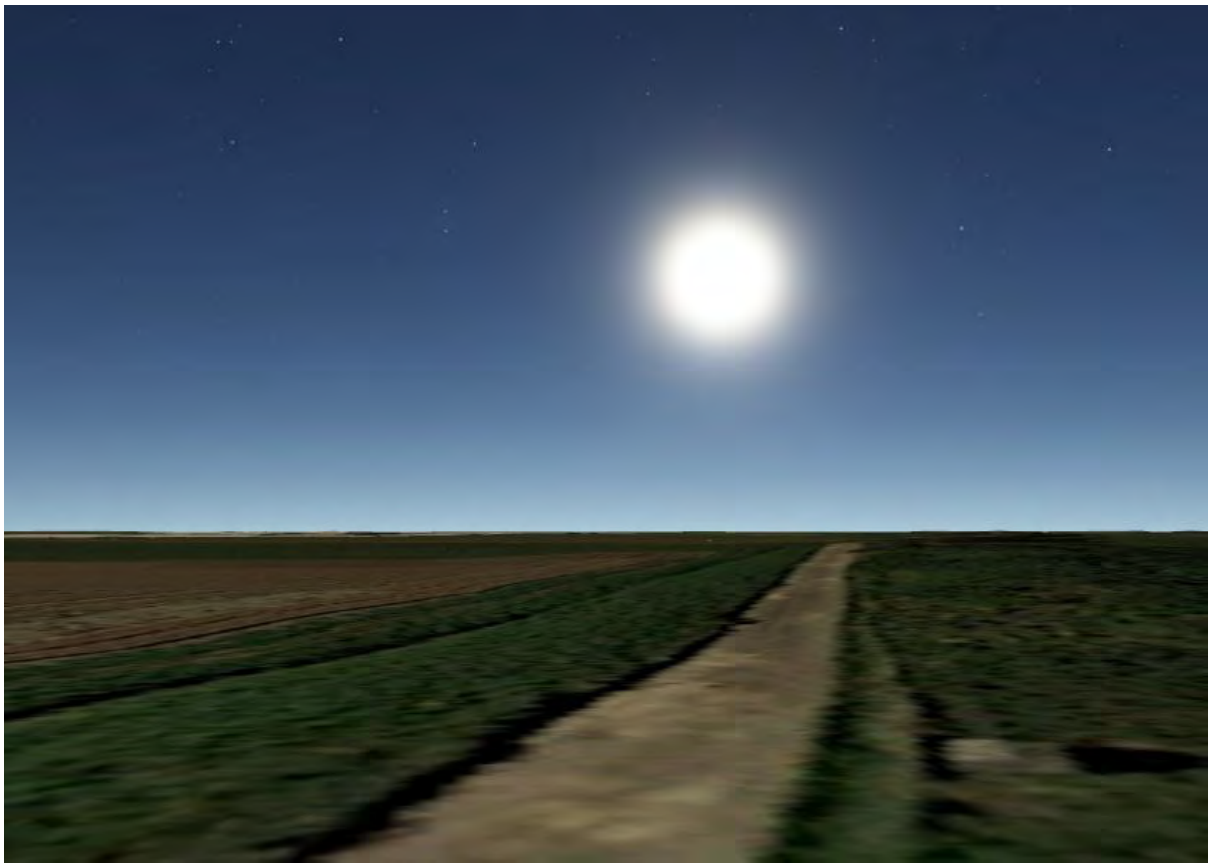


Receptor 24

April 1st 18:00 TC



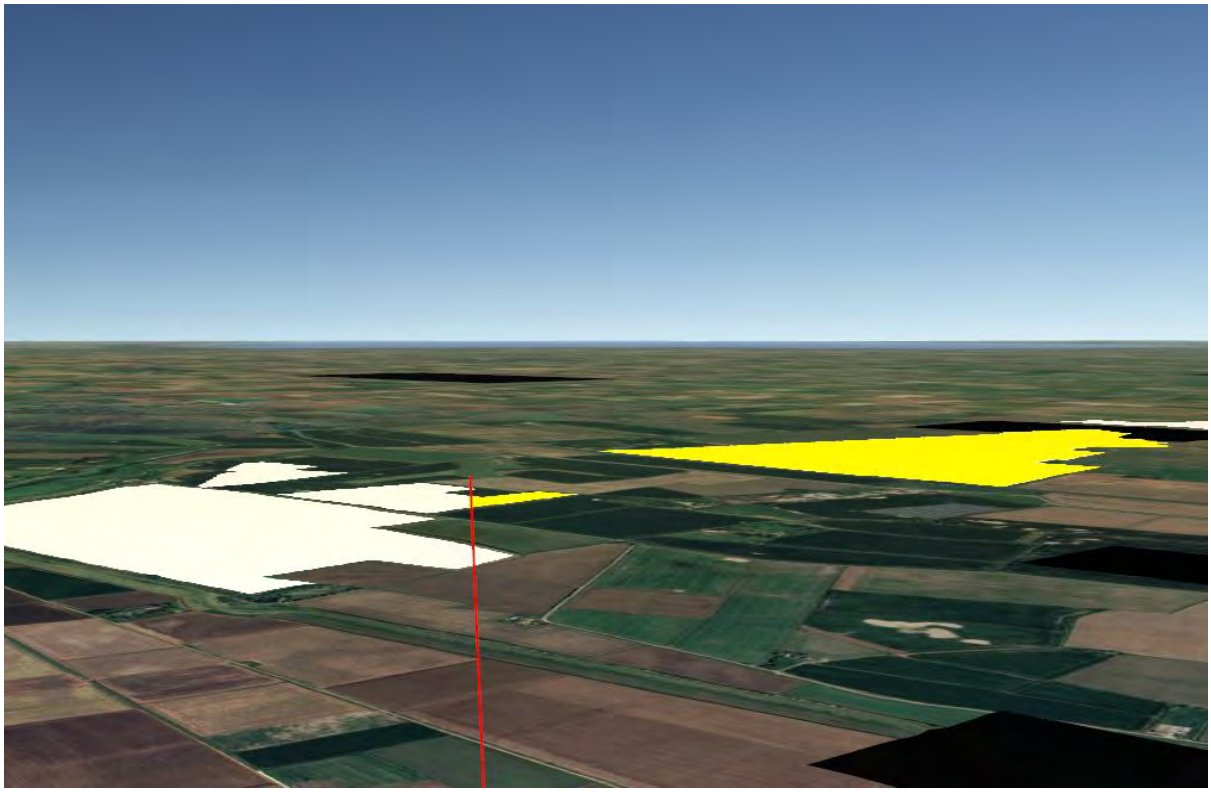
May 1st 18:00 UTC



West Aviation Receptors – Land Parcels A - C

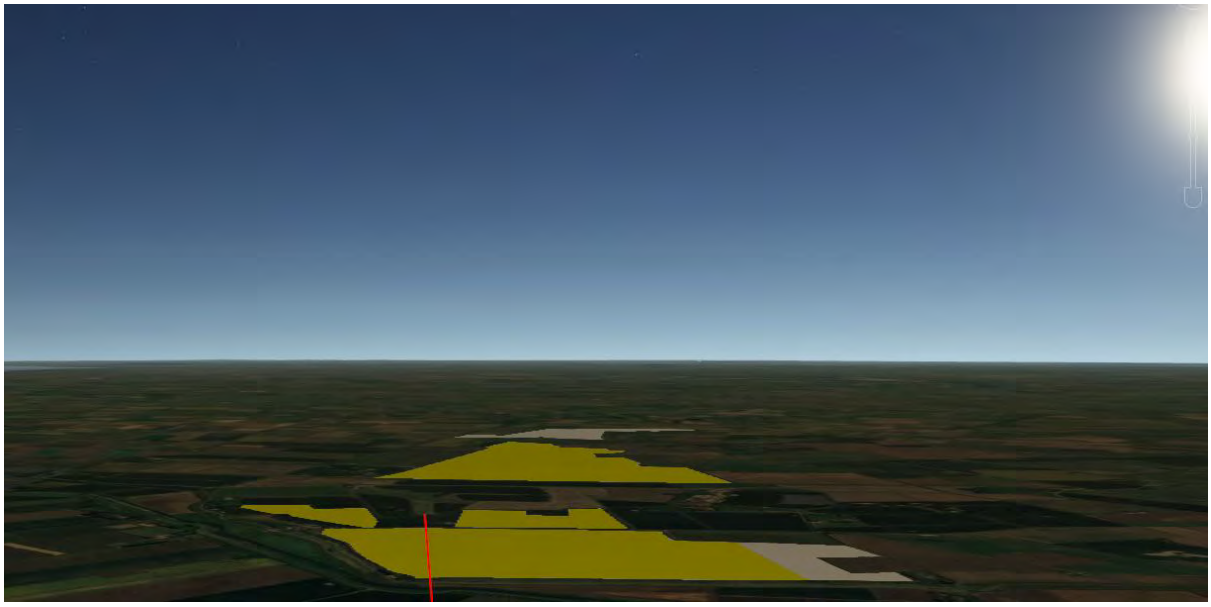
Crowland Airfield Runway 03 Approach Path

July 1st 07:00 UTC

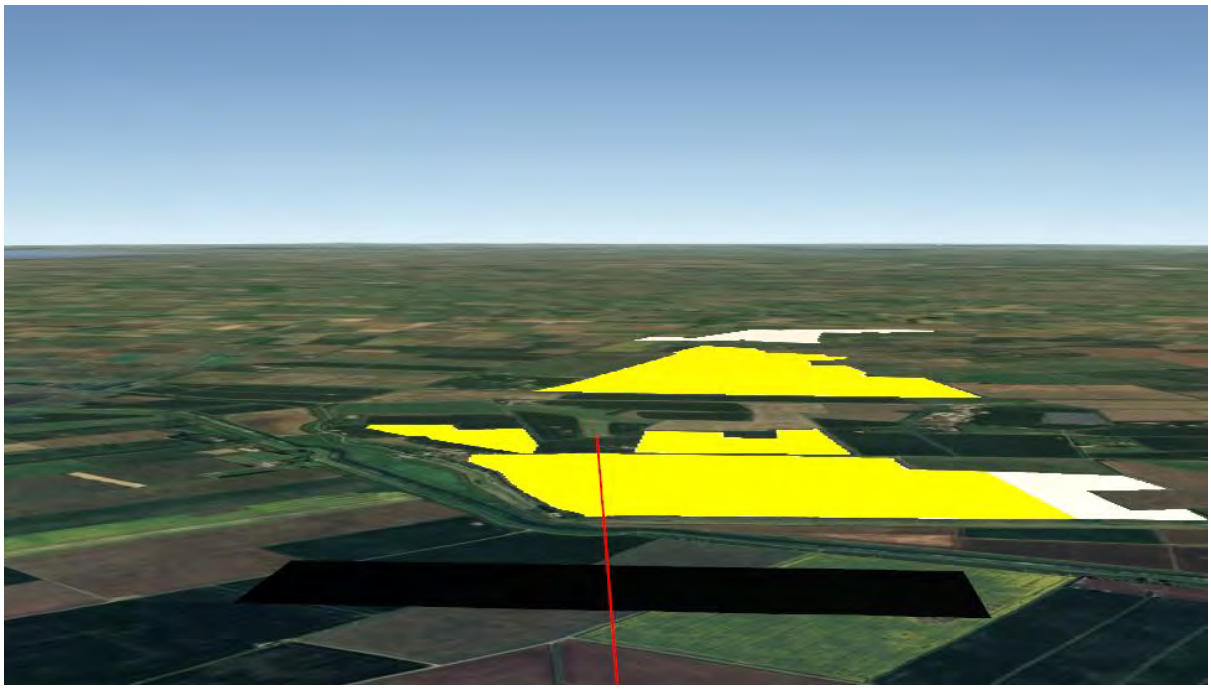


Crowland Airfield Runway 08 Approach Path

March 1st 08:00 UTC

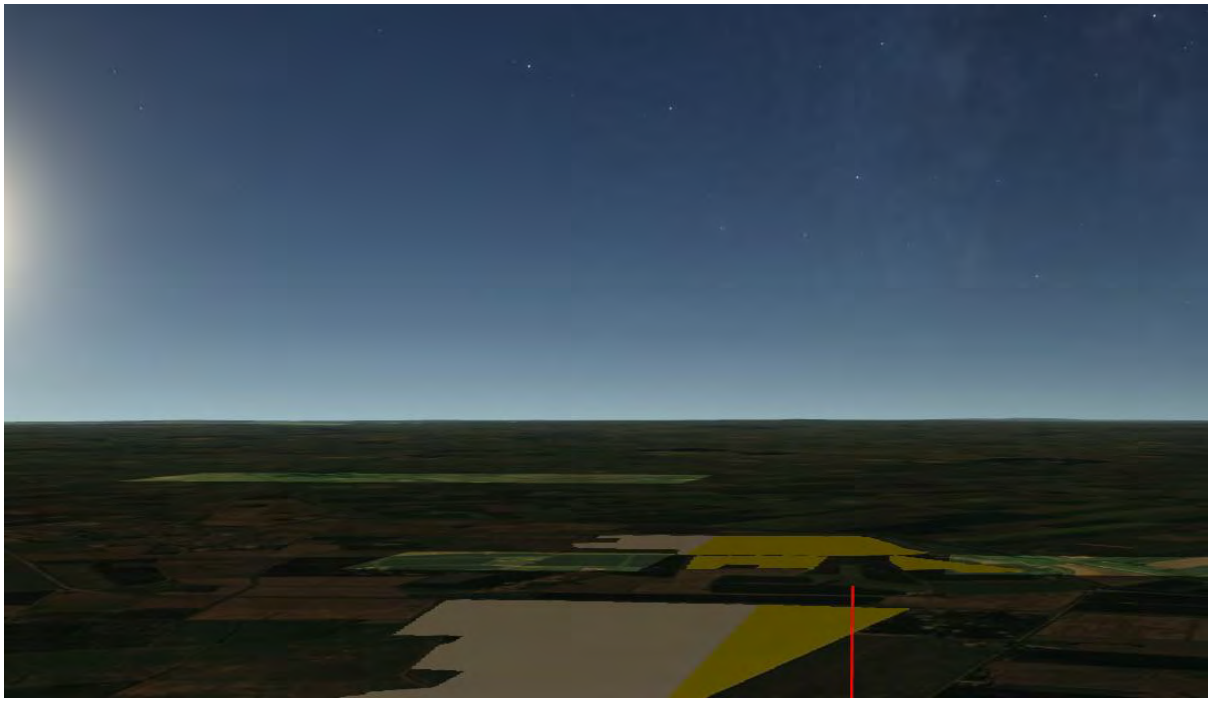


July 1st 07:00 UTC

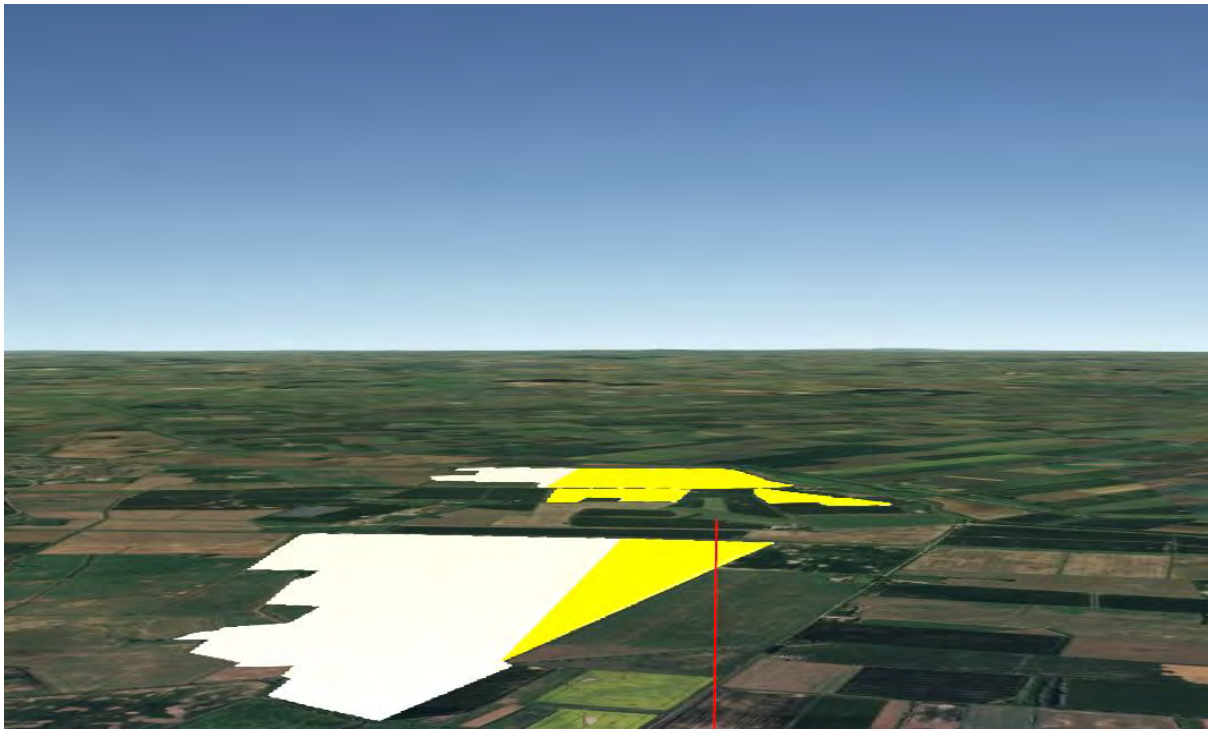


Crowland Airfield Runway 26 Approach Path

February 1st 16:00 UTC



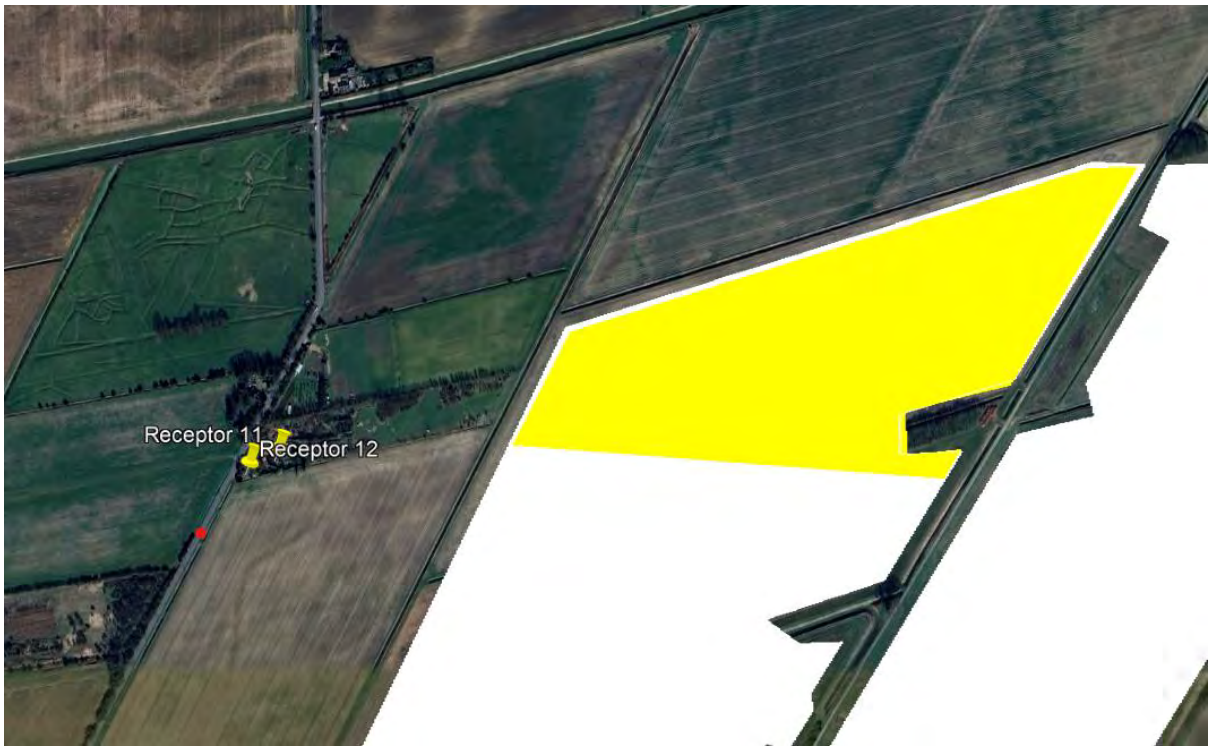
July 1st 17:15 UTC



East Residential Receptors – Land Parcels D

Receptor 10 (Group A Receptor 10)

Receptors 11 and 12 (Group A Receptors 11 and 12)

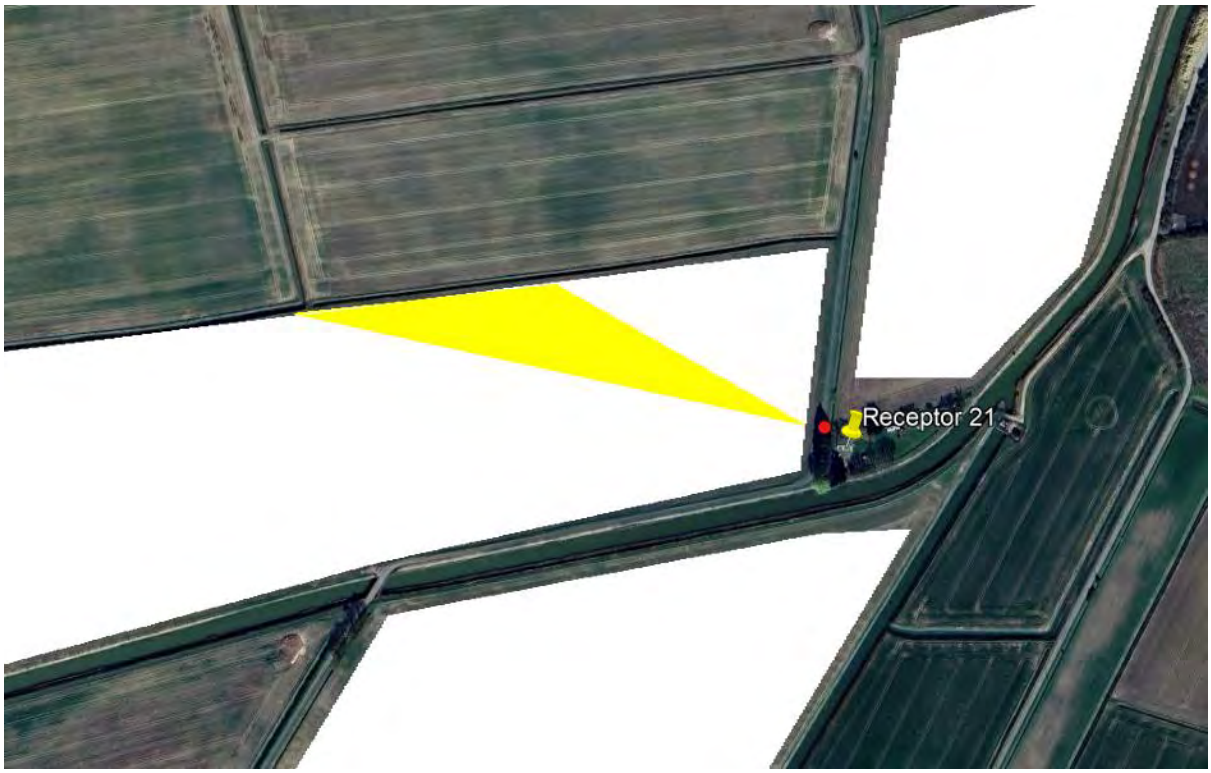


Receptor 15 (Group A Receptor 15)

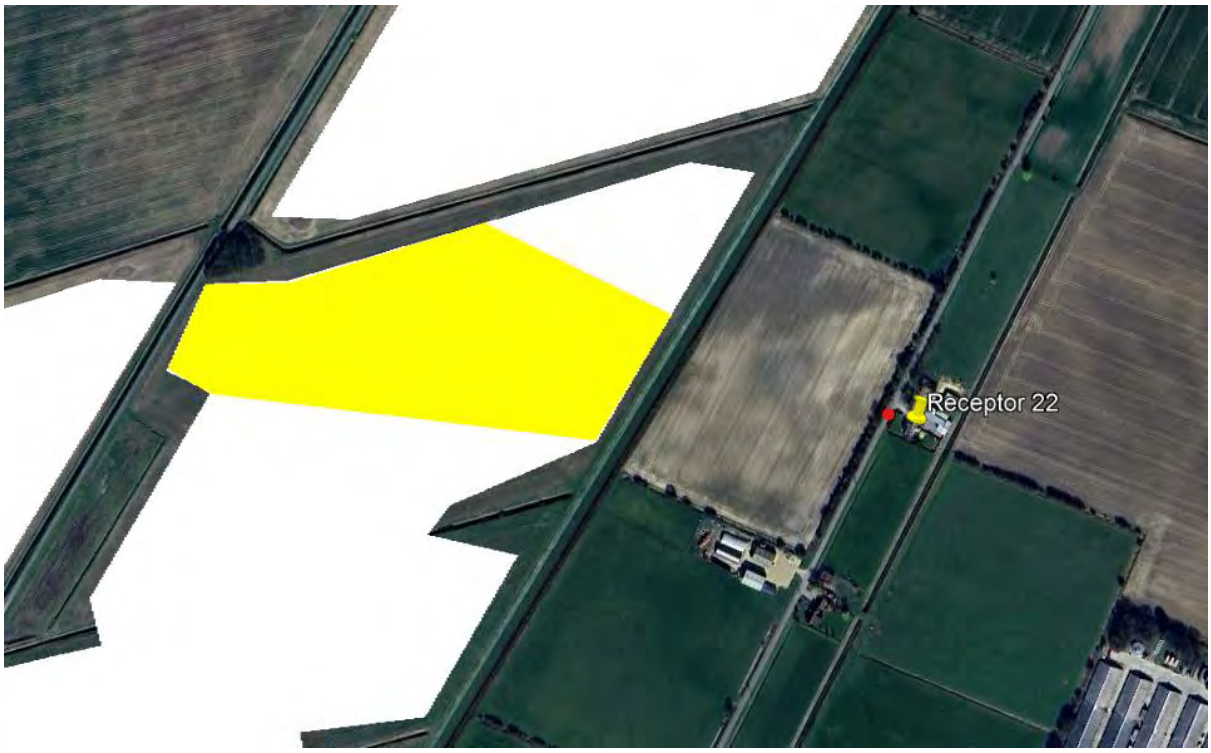
Receptor 16 (Group A Receptor 16)

Receptor 18 (Group A Receptor 18)

Receptor 21 (Group A Receptor 21)



Receptor 22 (Group A Receptor 22)

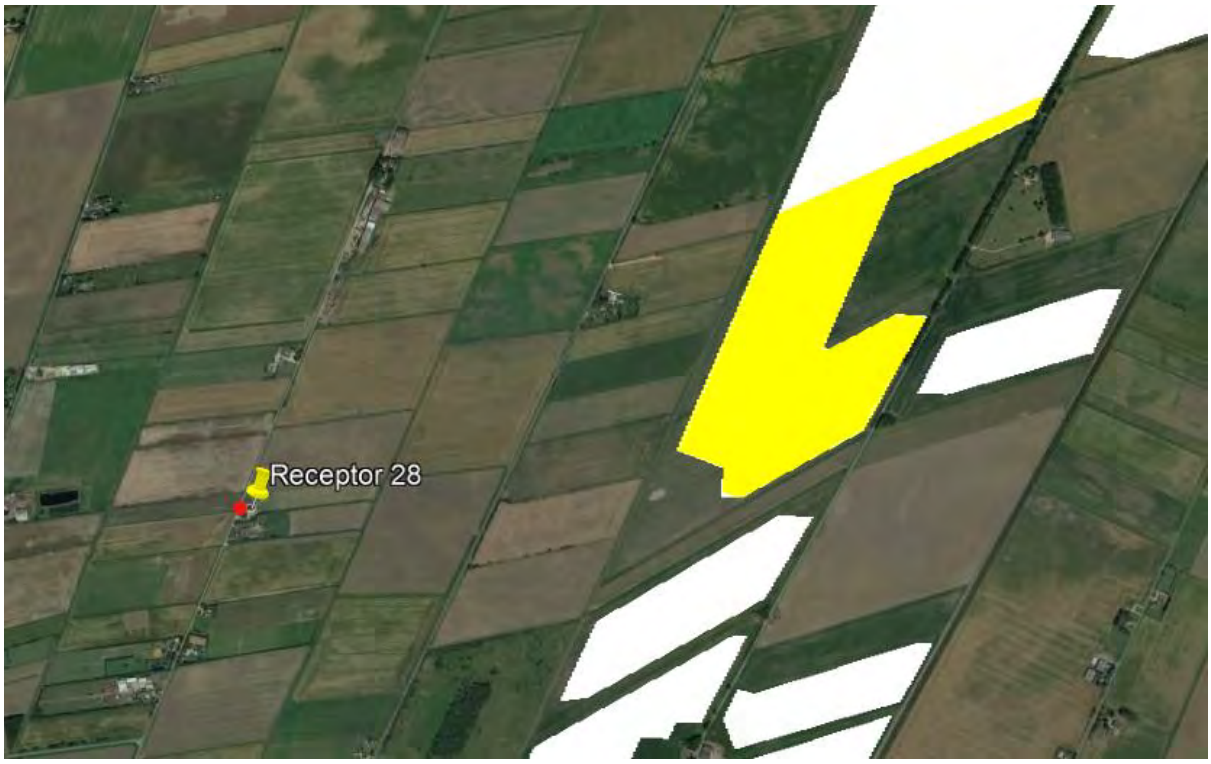


Receptor 23 (Group A Receptor 23)

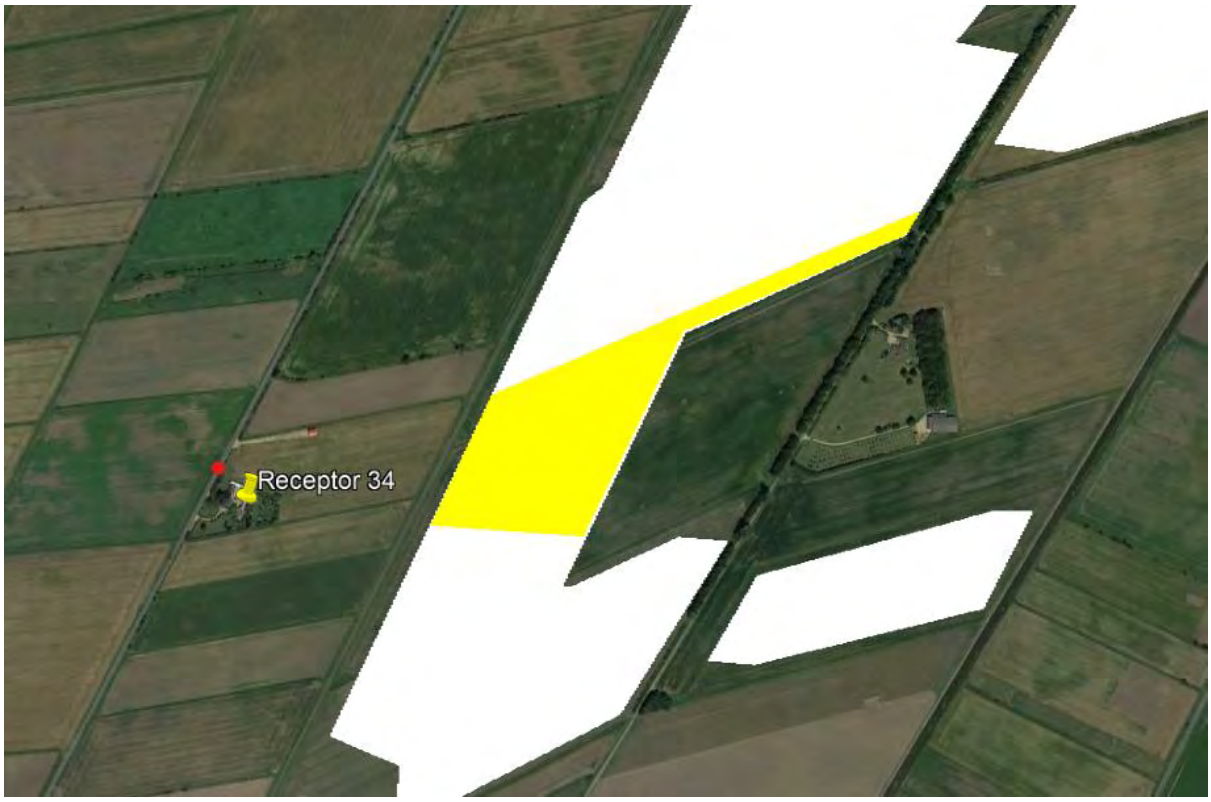
Receptor 24 (Group A Receptor 24)

Receptor 25 (Group A Receptor 25)

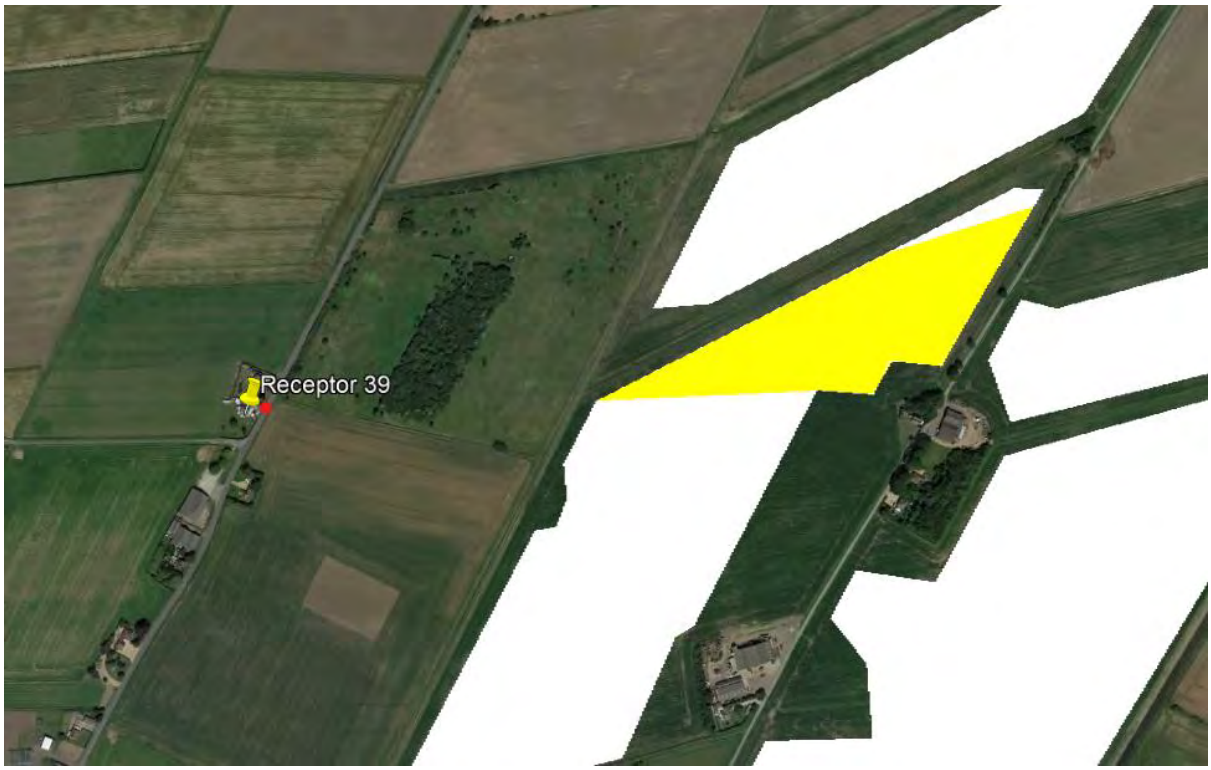
Receptor 28 (Group A Receptor 28)



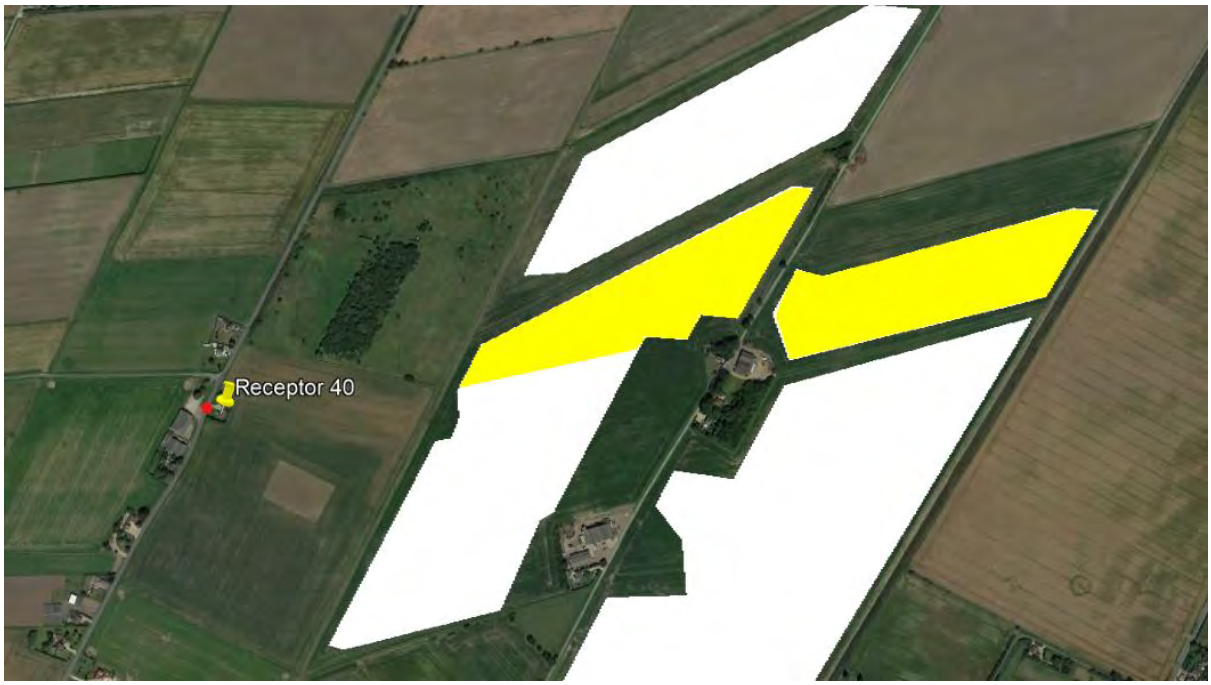
Receptor 34 (Group A Receptor 34)



Receptor 39 (Group A Receptor 39)

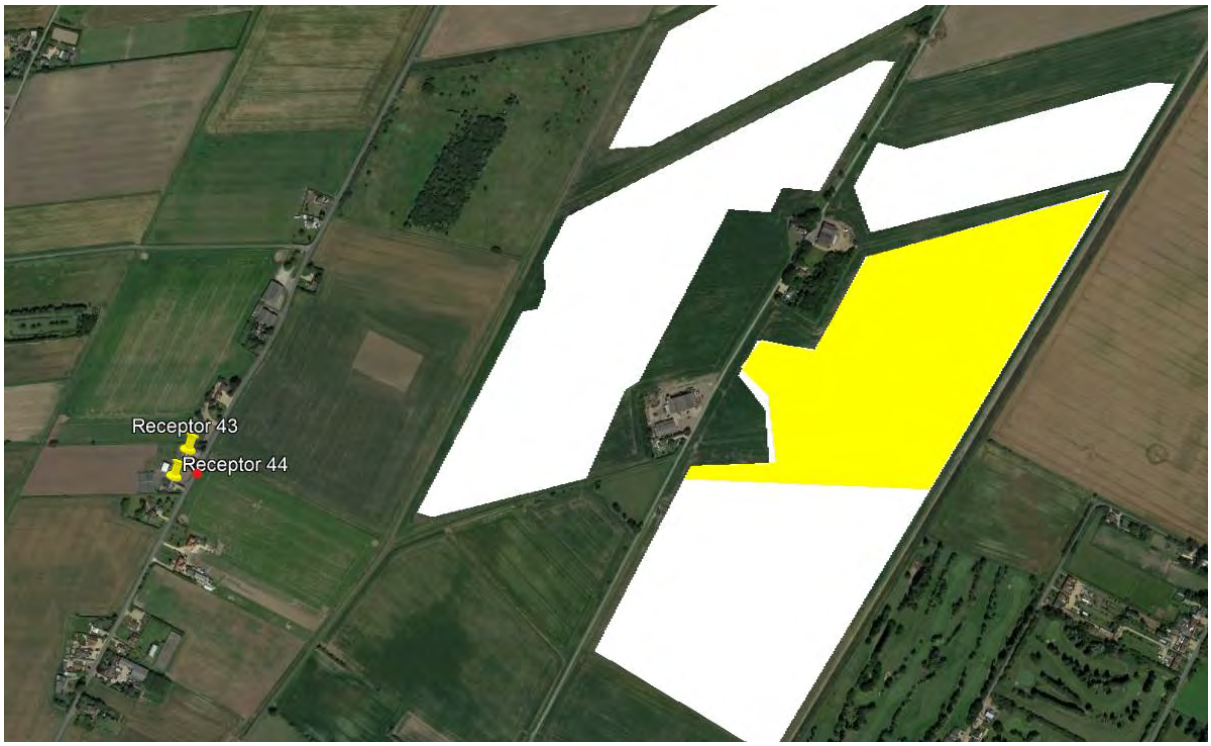


Receptor 40 (Group A Receptor 40)

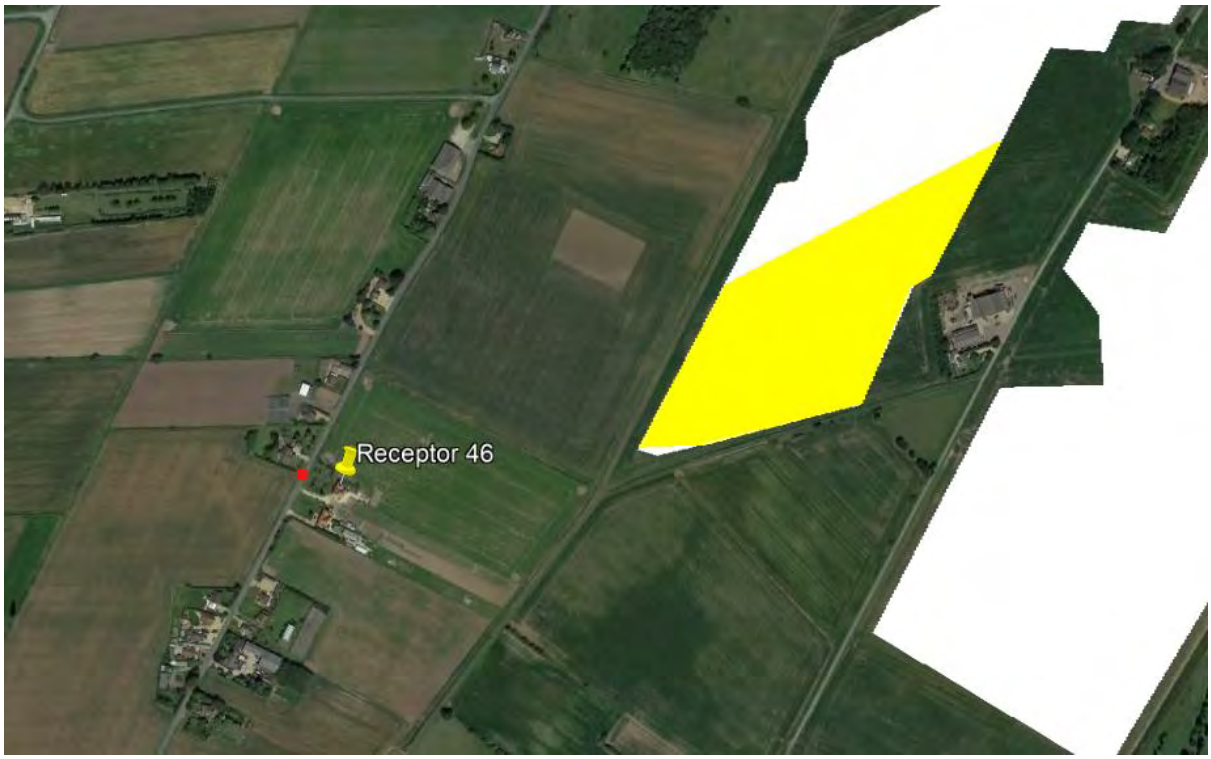


Receptor 41 (Group A Receptor 41)

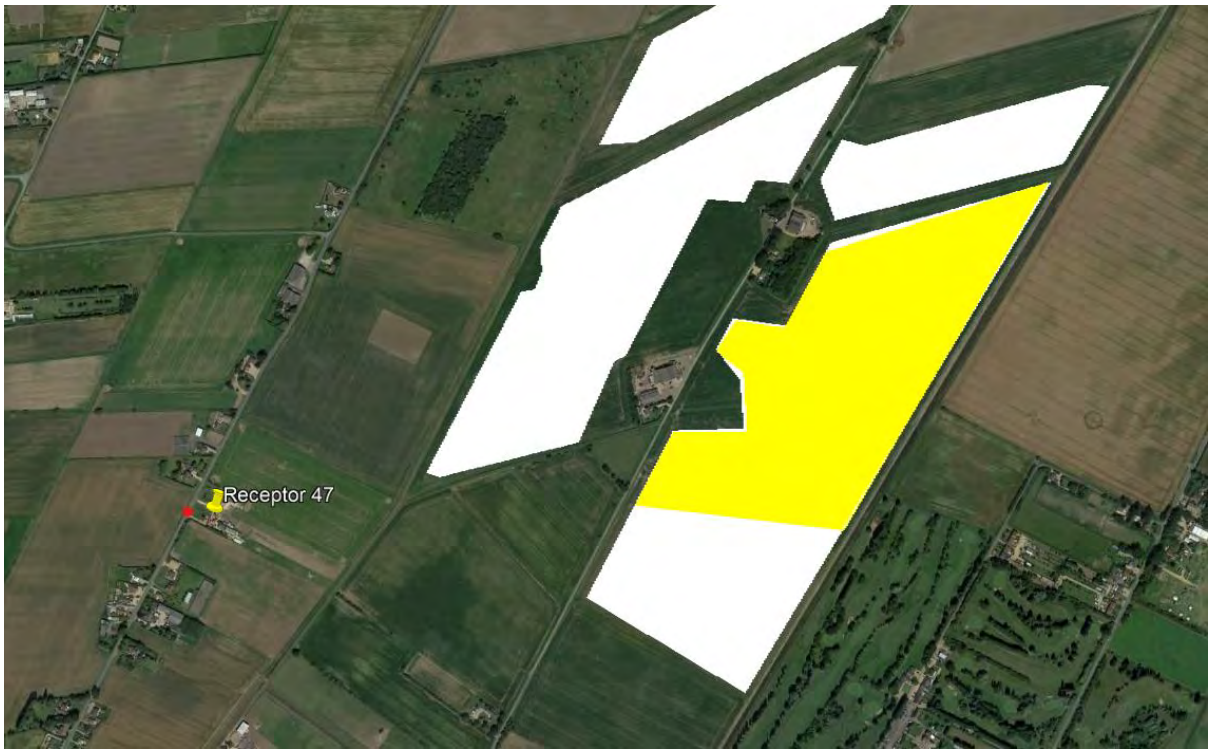
Receptors 43 and 44 (Group A Receptors 43 and 44)



Receptor 46 (Group A Receptor 46)

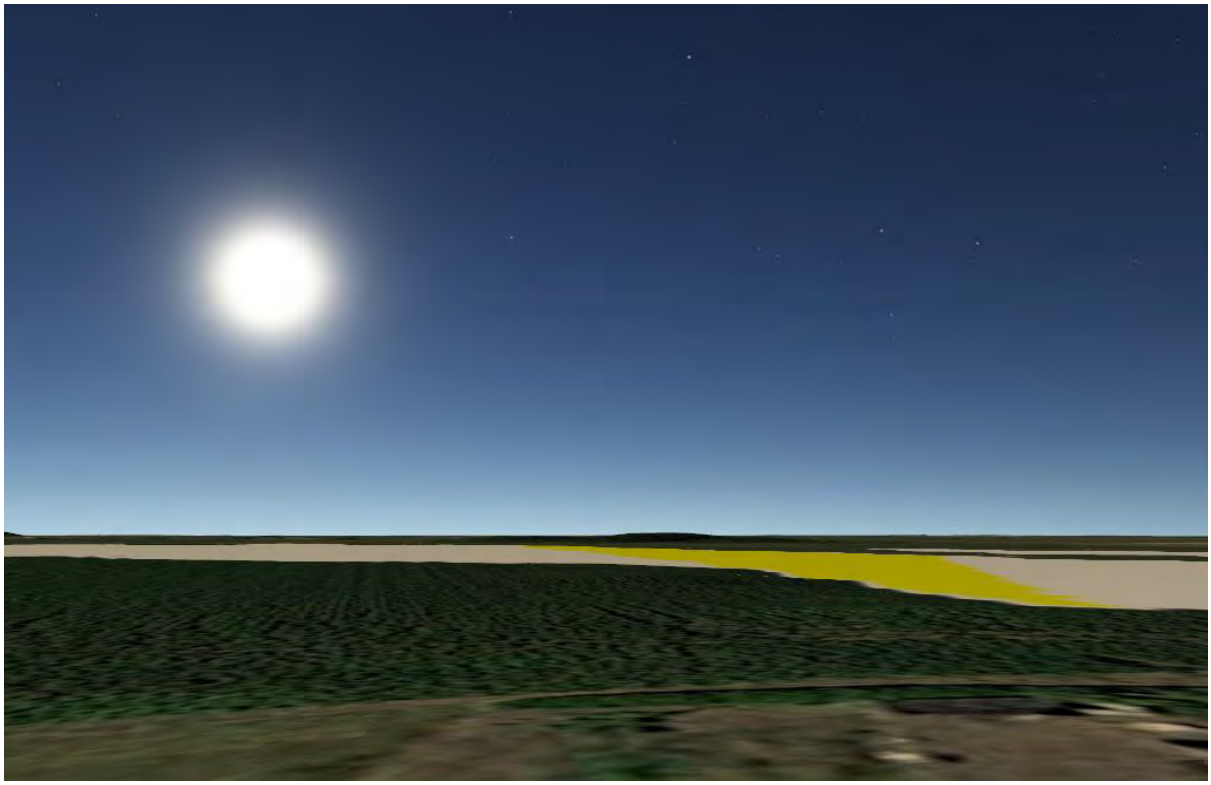


Receptor 47 (Group A Receptor 47)

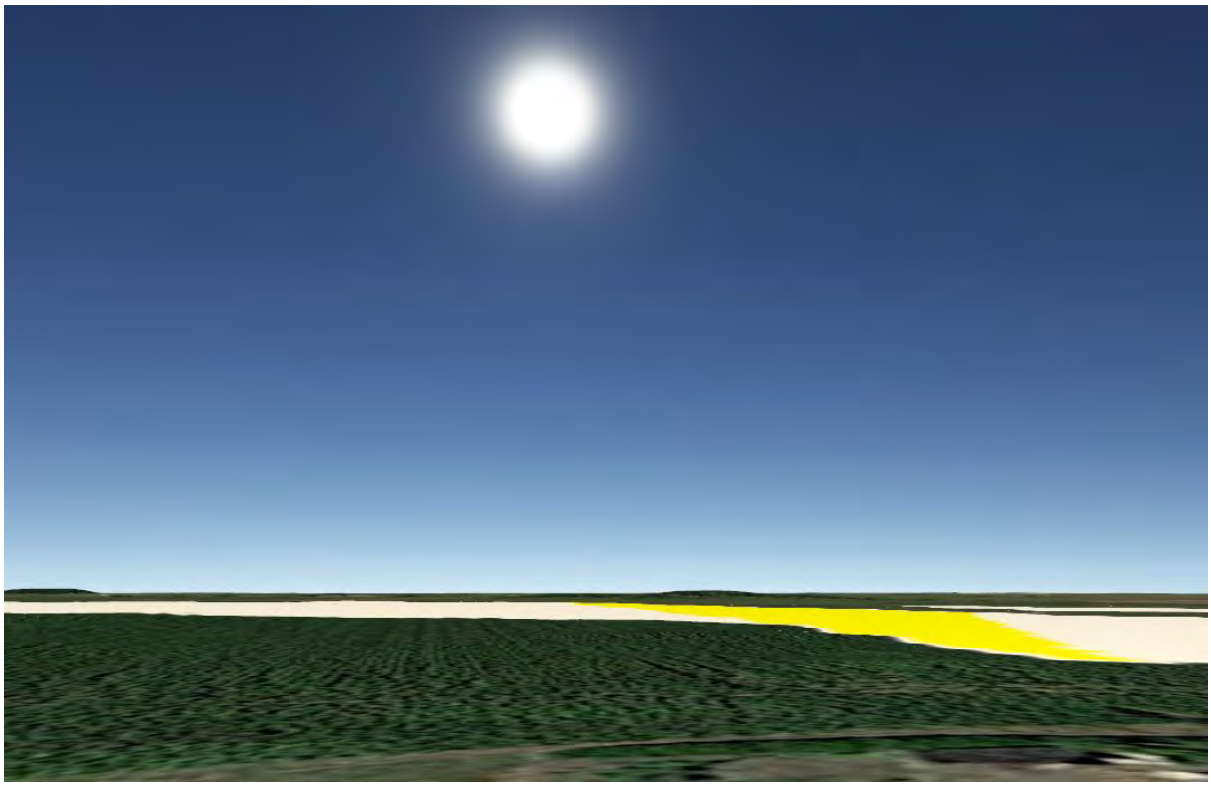


Receptor 48 (Group A Receptor 48)

April 1st 18:00 UTC



July 1st 18:00 UTC



Receptor 49 (Group A Receptor 49)

Receptor 50 (Group A Receptor 50)

Looking West

Looking East

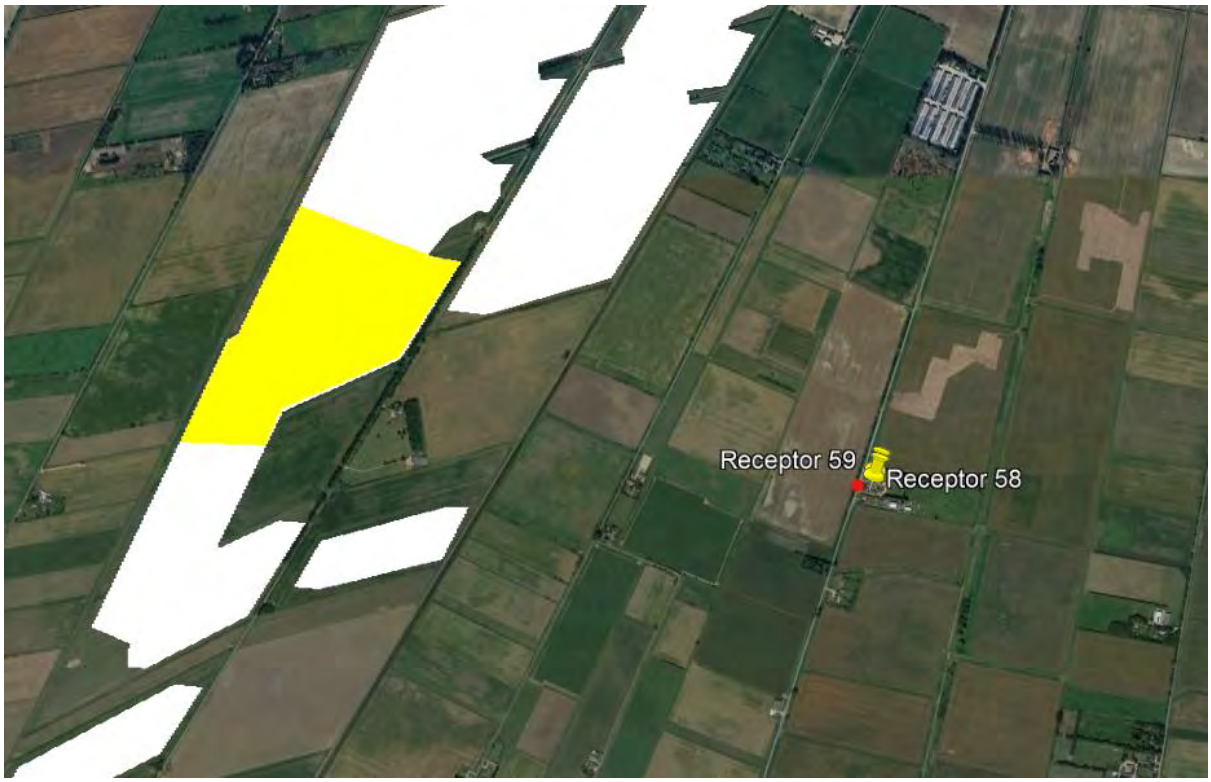
Receptor 51 (Group A Receptor 51)

Receptor 52 (Group a Receptor 52)

Receptors 54 – 56 (Group A Receptors 54 – 56)

Receptor 57 (Group A Receptor 57)

Receptors 58 and 59 (Group A Receptors 58 and 59)

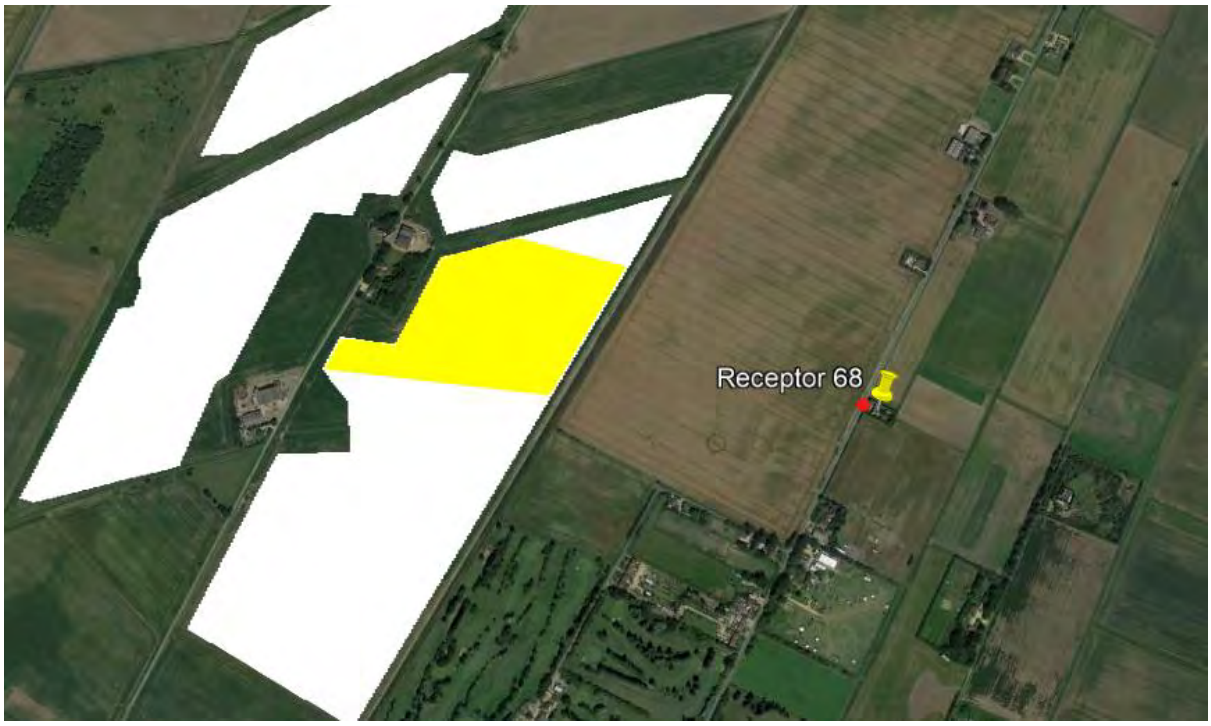


Receptor 61 (Group A Receptor 1)

Receptor 66 (Group B Receptor 6)

Receptor 67 (Group B Receptor 7)

Receptor 68 (Group B Receptor 8)

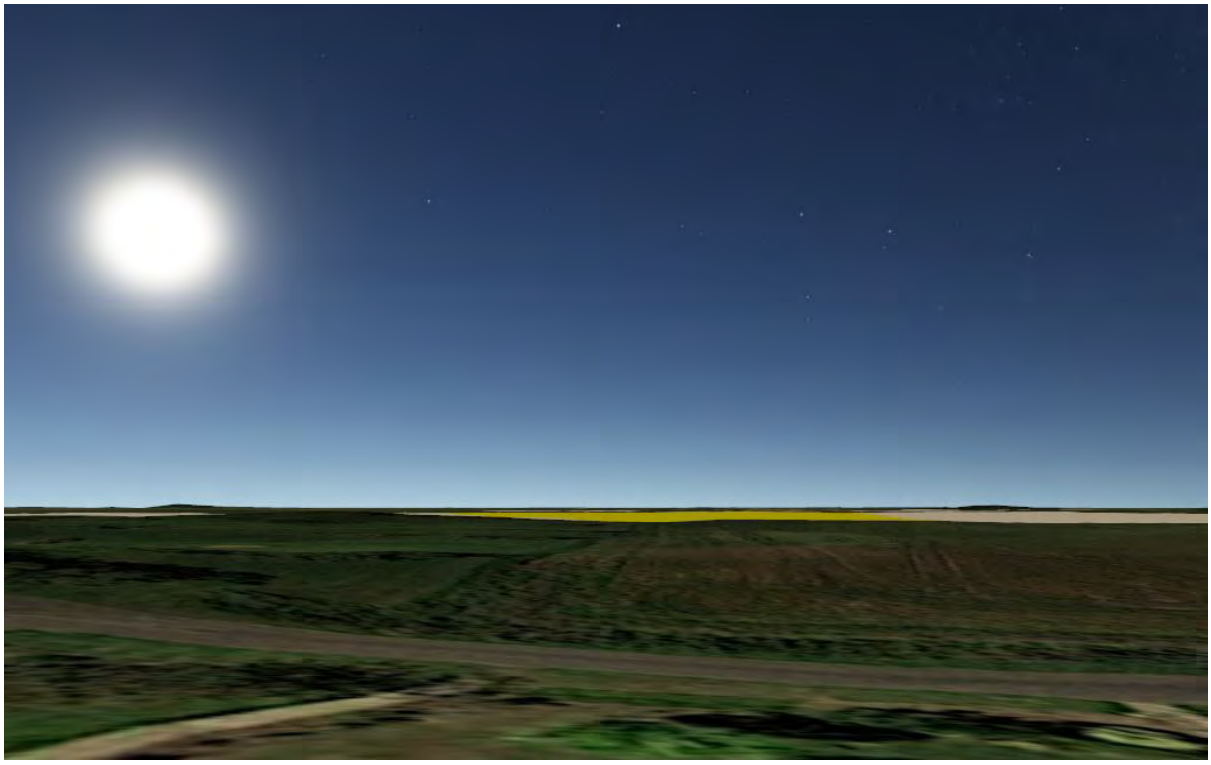


Receptor 69 (Group B Receptor 69)

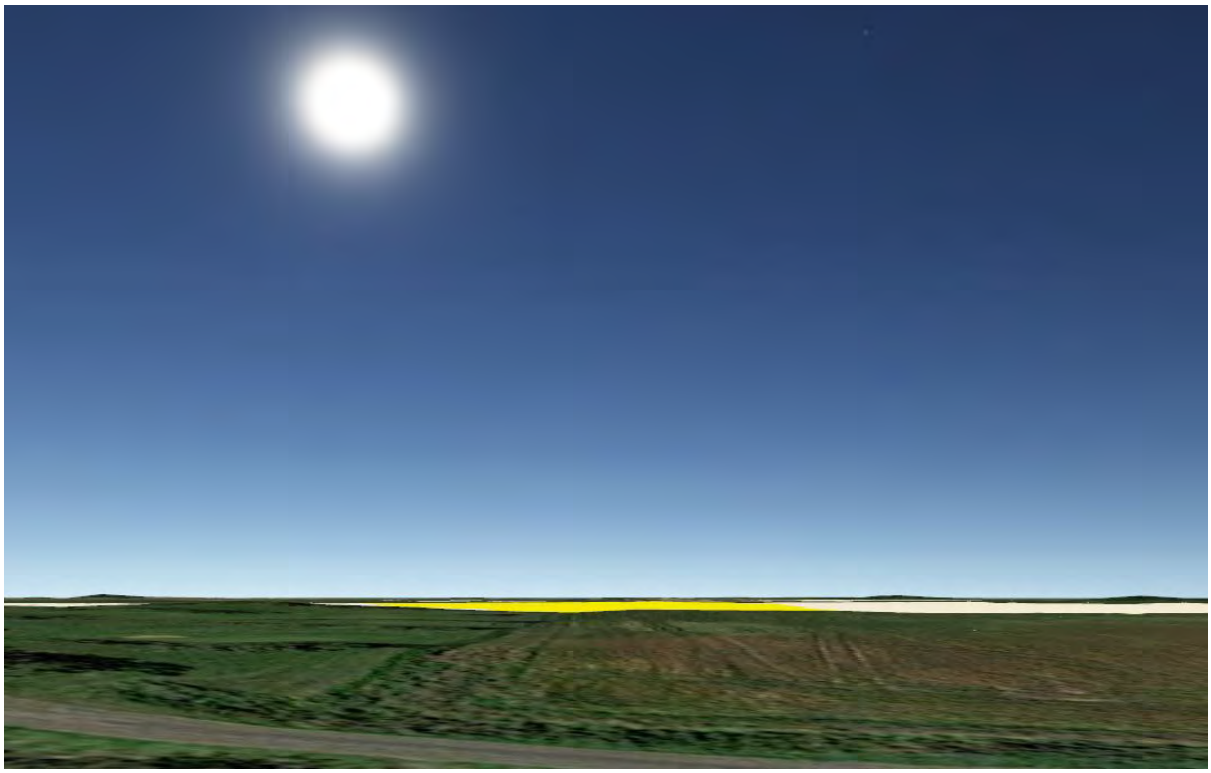
Receptors 70, 74 and 75 (Group B Receptors 10, 14 and 15)

Receptor 71 (Group B Receptor 11)

April 1st 18:00 UTC



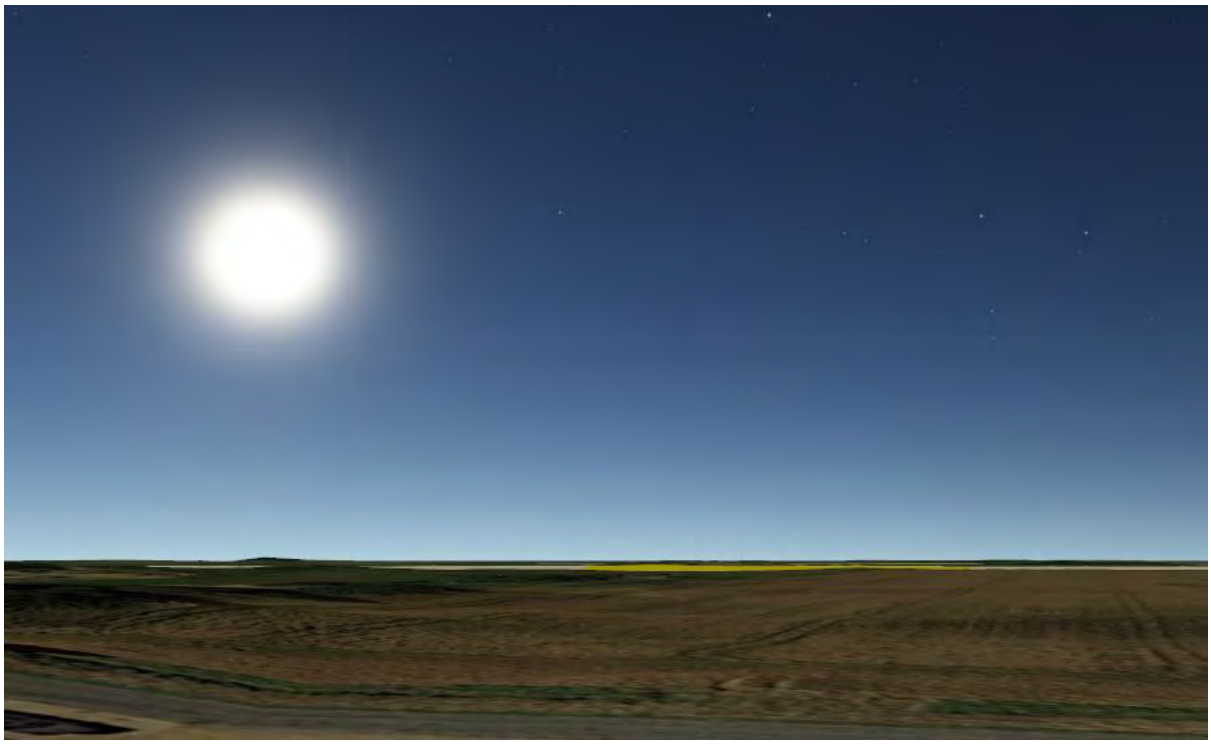
July 1st 18:00 UTC



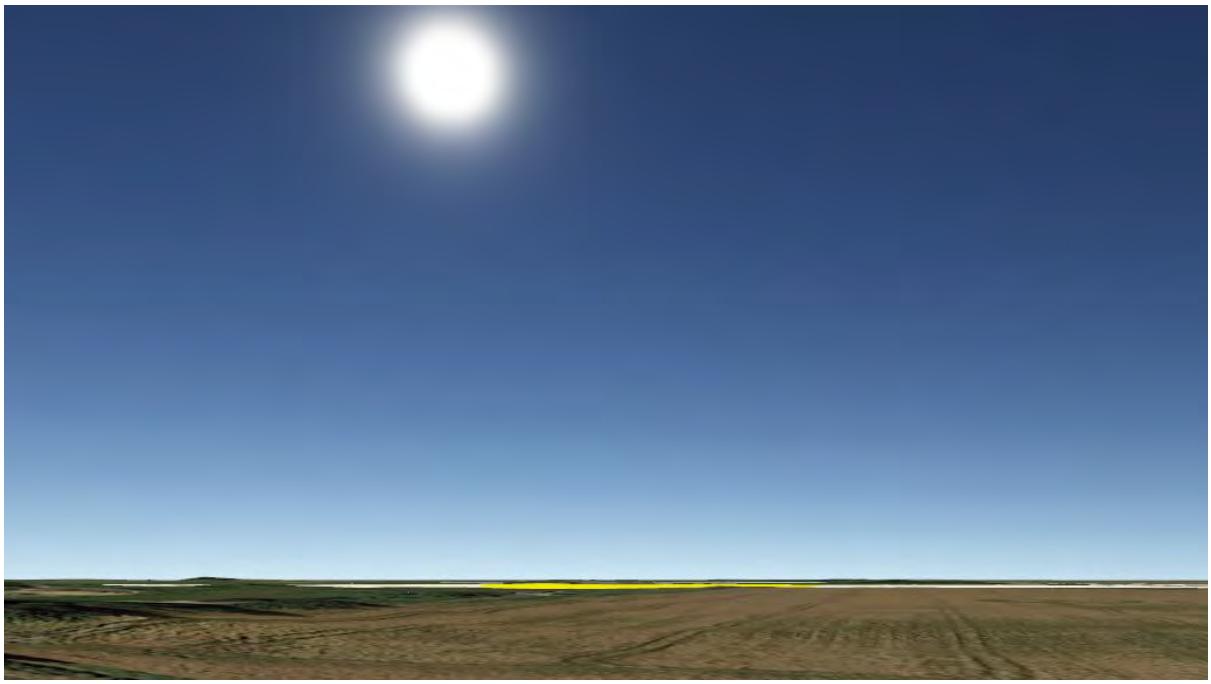
Receptor 72 (Group B Receptor 12)

Receptor 73 (Group B Receptor 13)

April 1st 18:00 UTC



July 1st 18:00 UTC

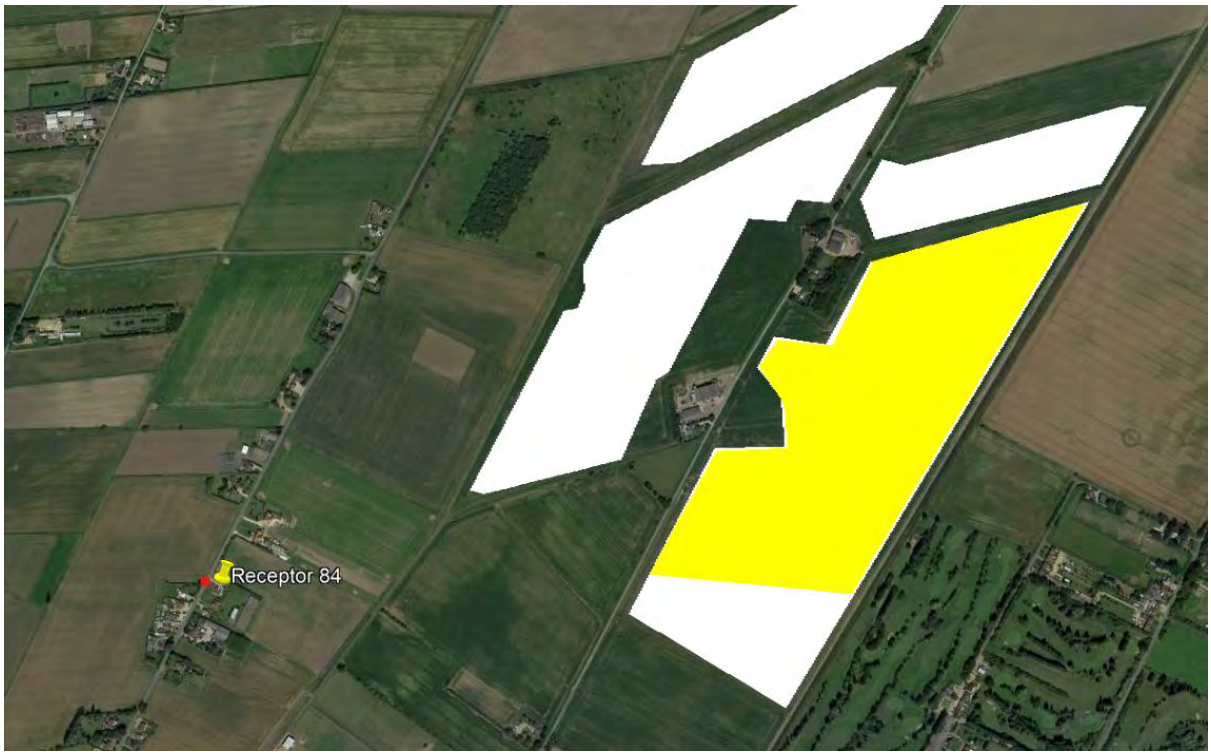


Receptors 76 and 77 (Group B Receptors 16 and 17)

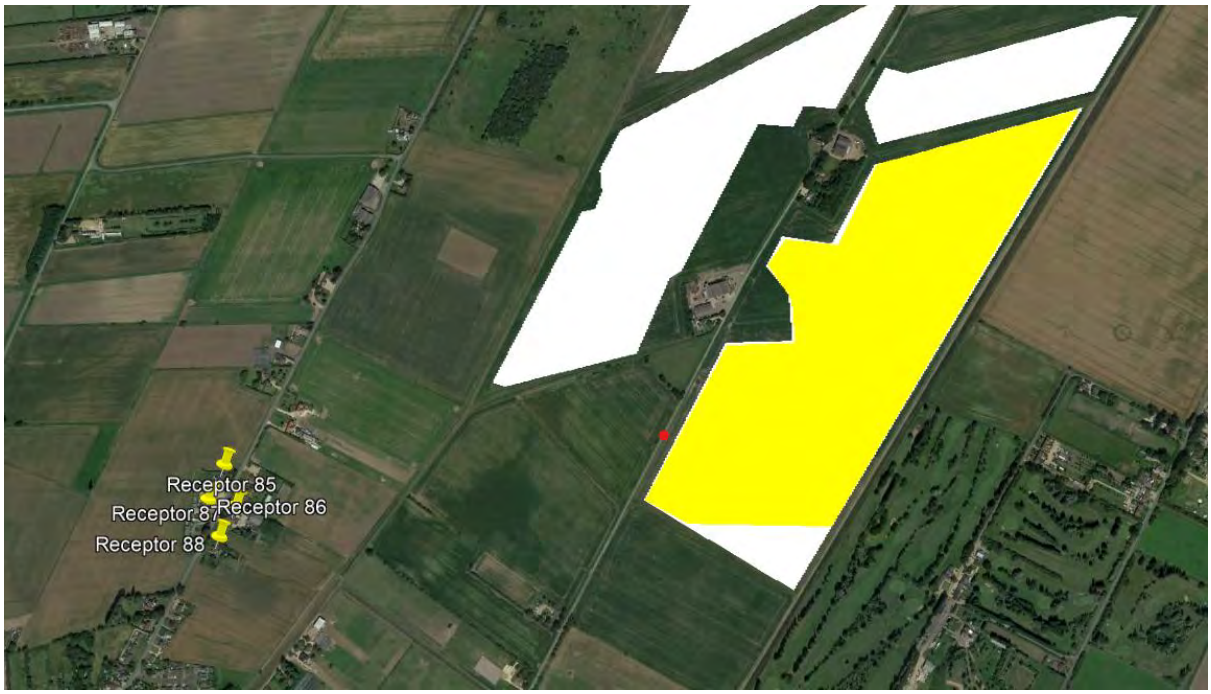
Receptor 78 (Group B Receptor 18)

Receptors 79 – 83 (Group B Receptors 19 – 23)

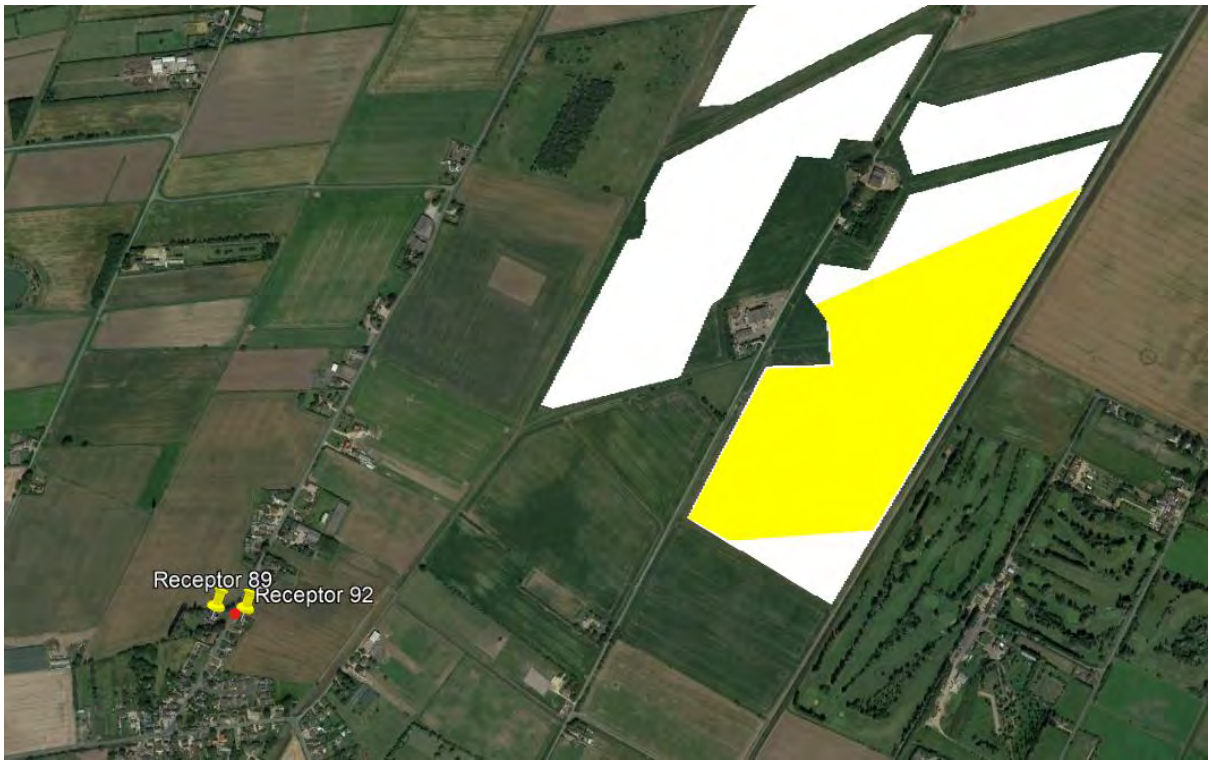
Receptor 84 (Group B Receptor 24)



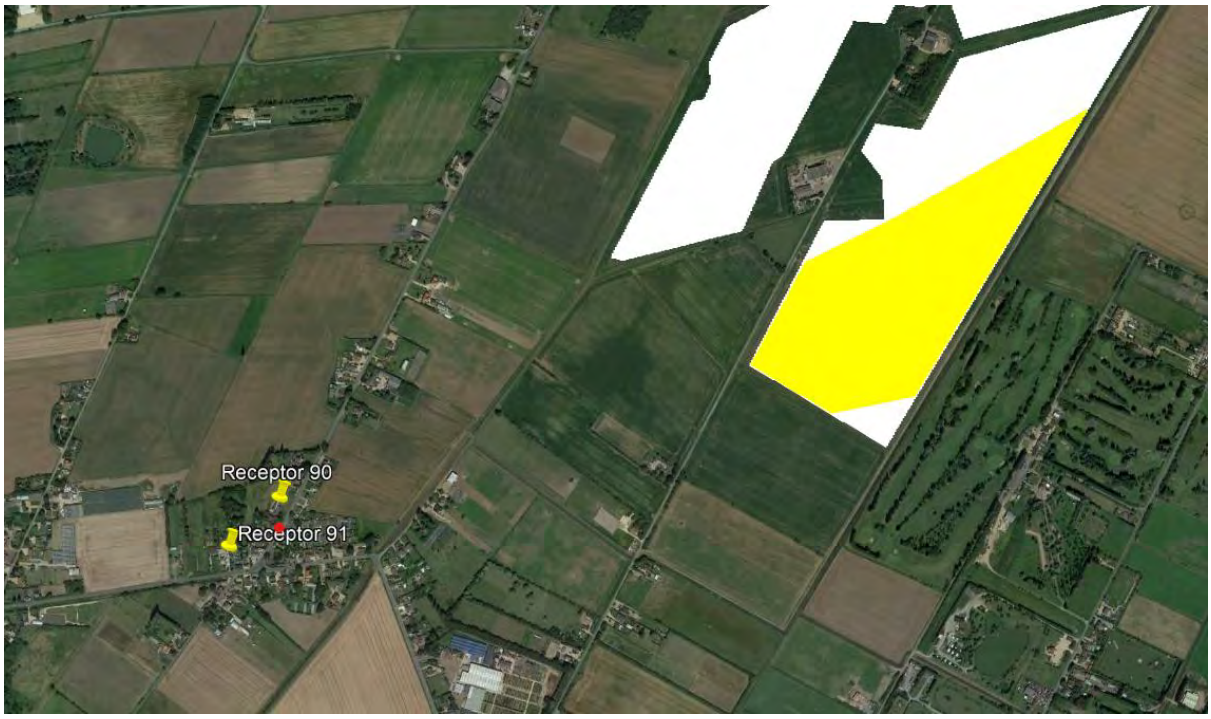
Receptors 85 – 88 (Group B Receptors 25 – 28)



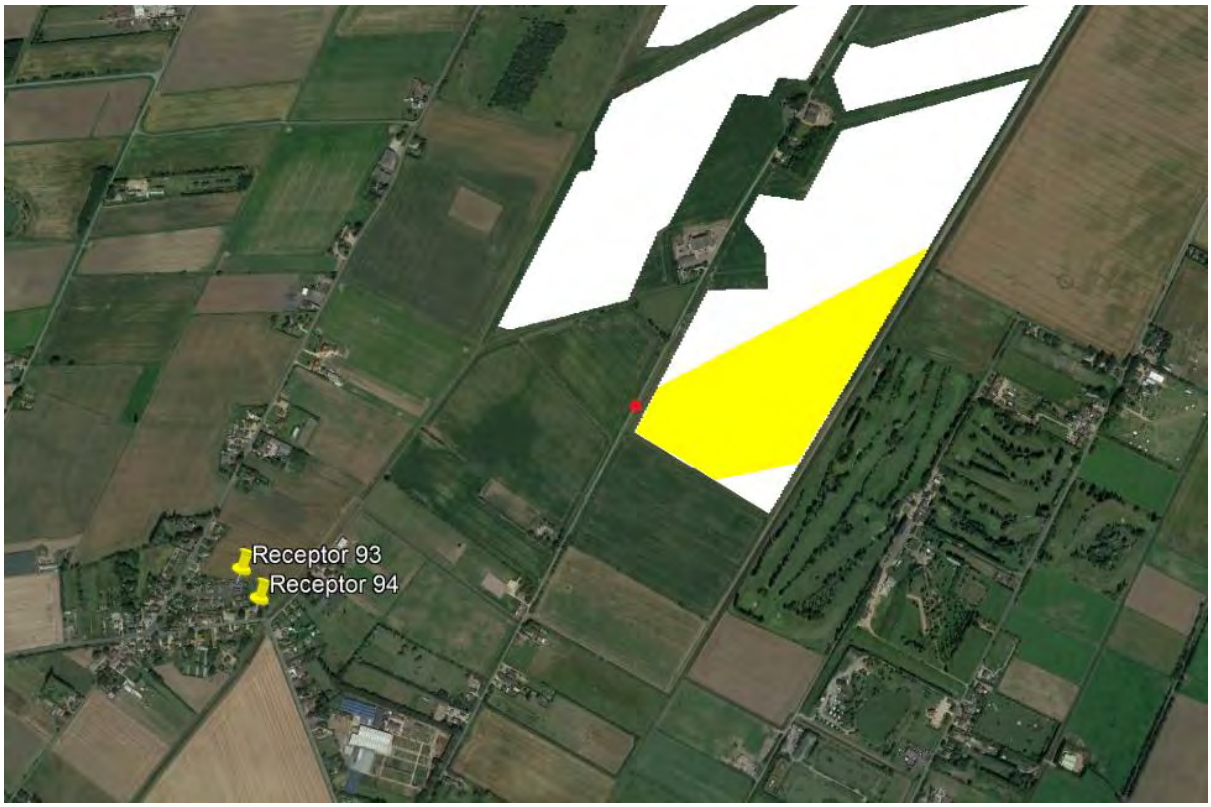
Receptors 89 and 92 (Group B Receptors 29 and 32)



Receptors 90 and 91 (Group B Receptors 30 and 31)

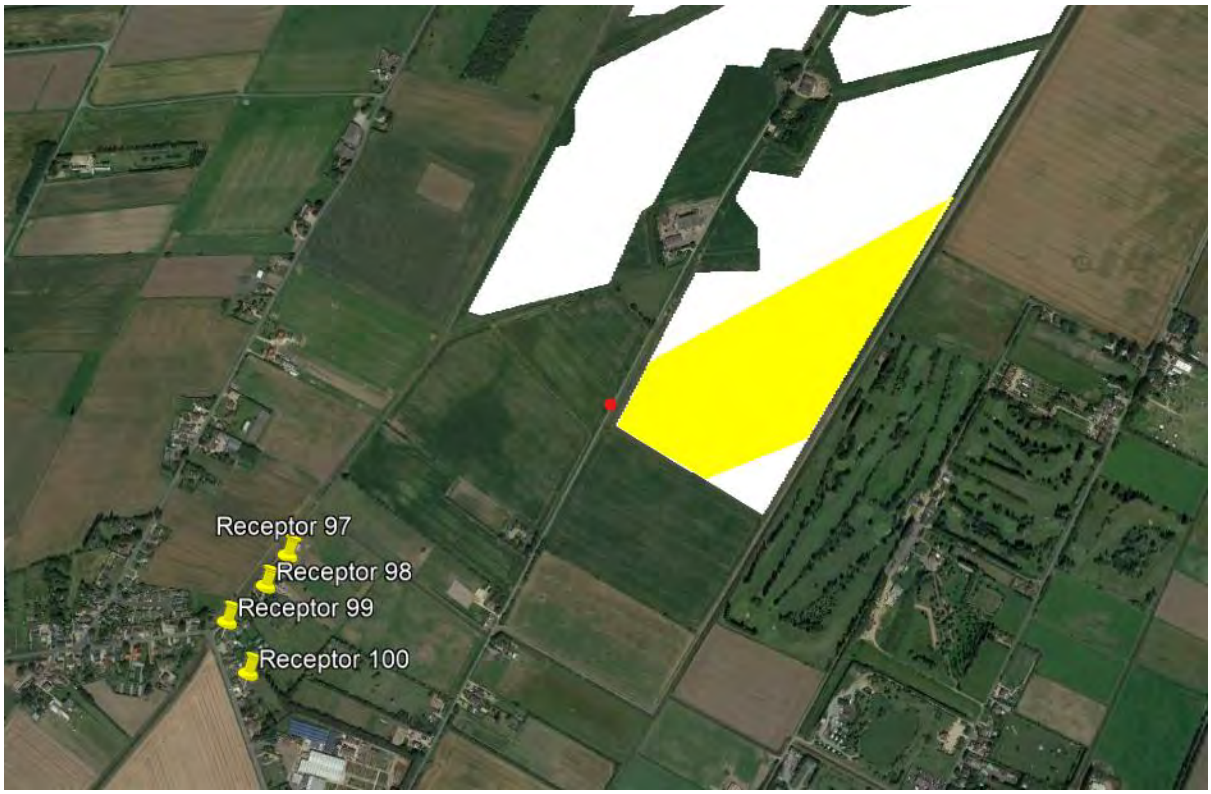


Receptors 93 and 94 (Group B Receptors 33 and 34)



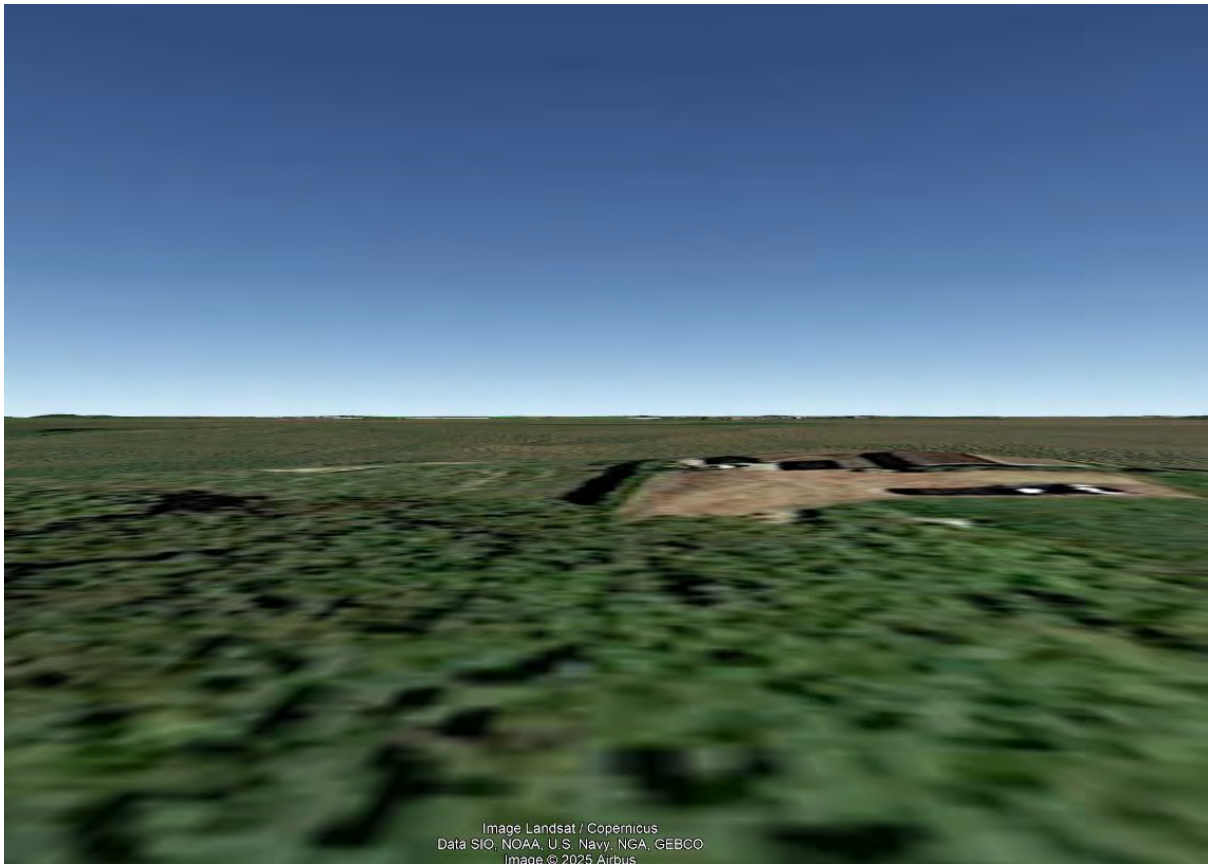
Receptors 95 and 96 (Group B Receptors 35 and 36)

Receptors 97 - 100 (Group B Receptors 37 - 40)

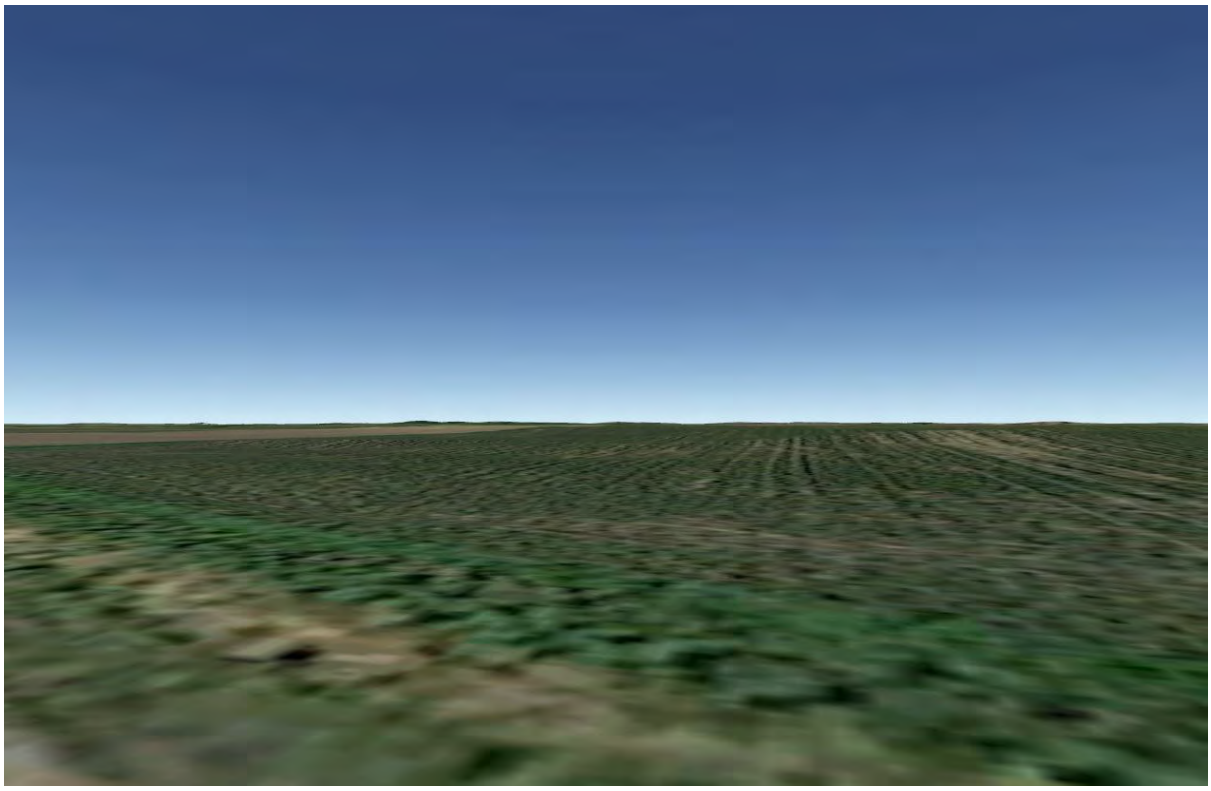


East Road Receptors – Land Parcels D

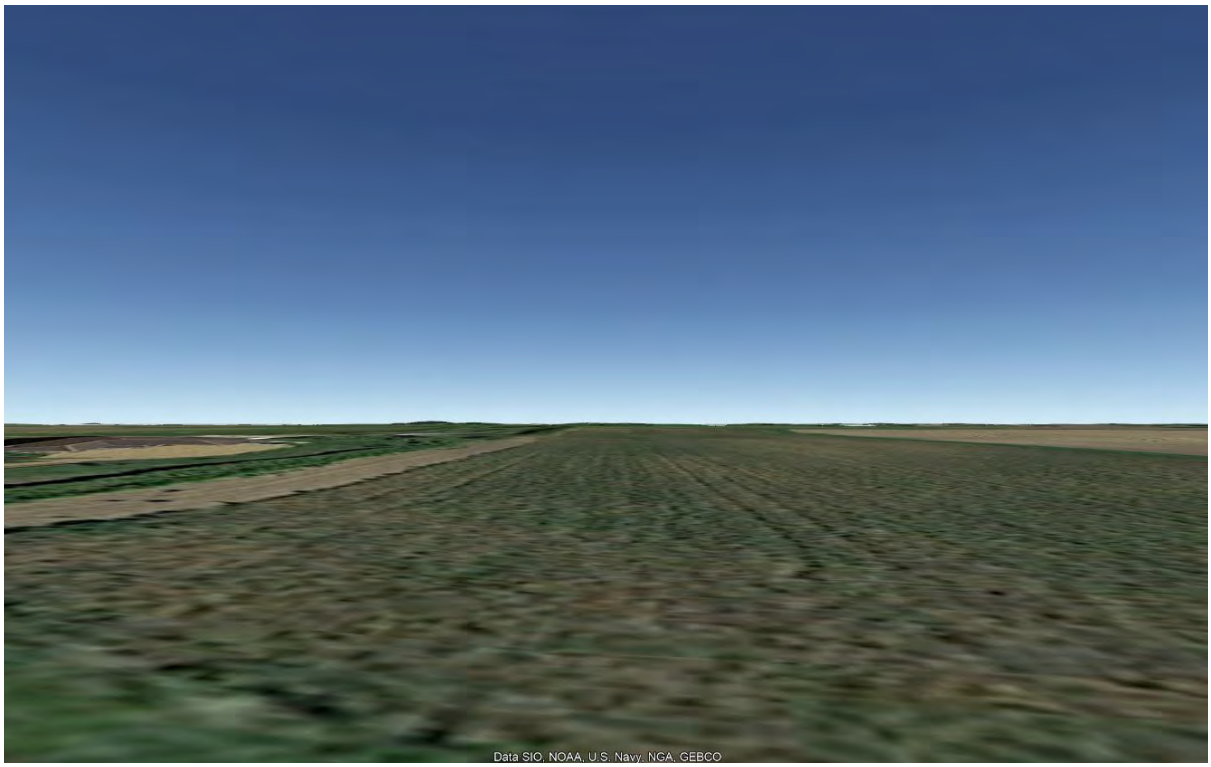
Receptor 1



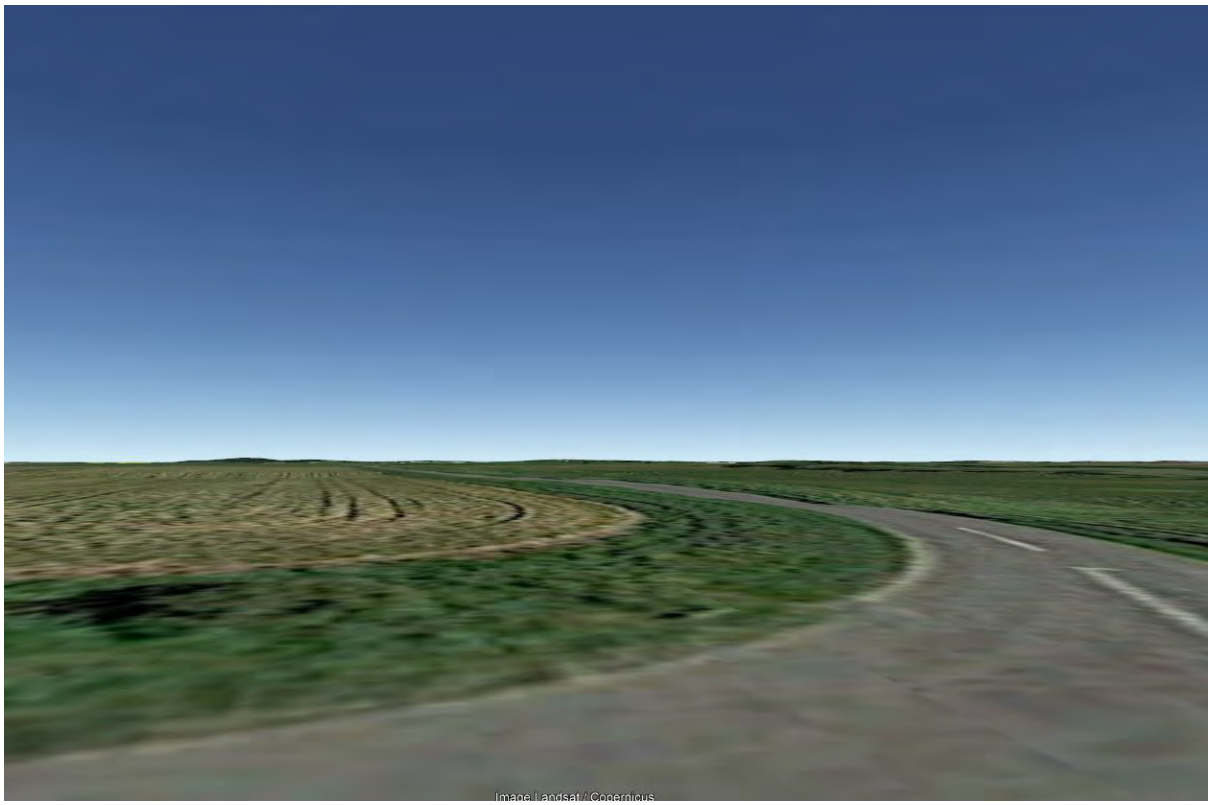
Receptor 2



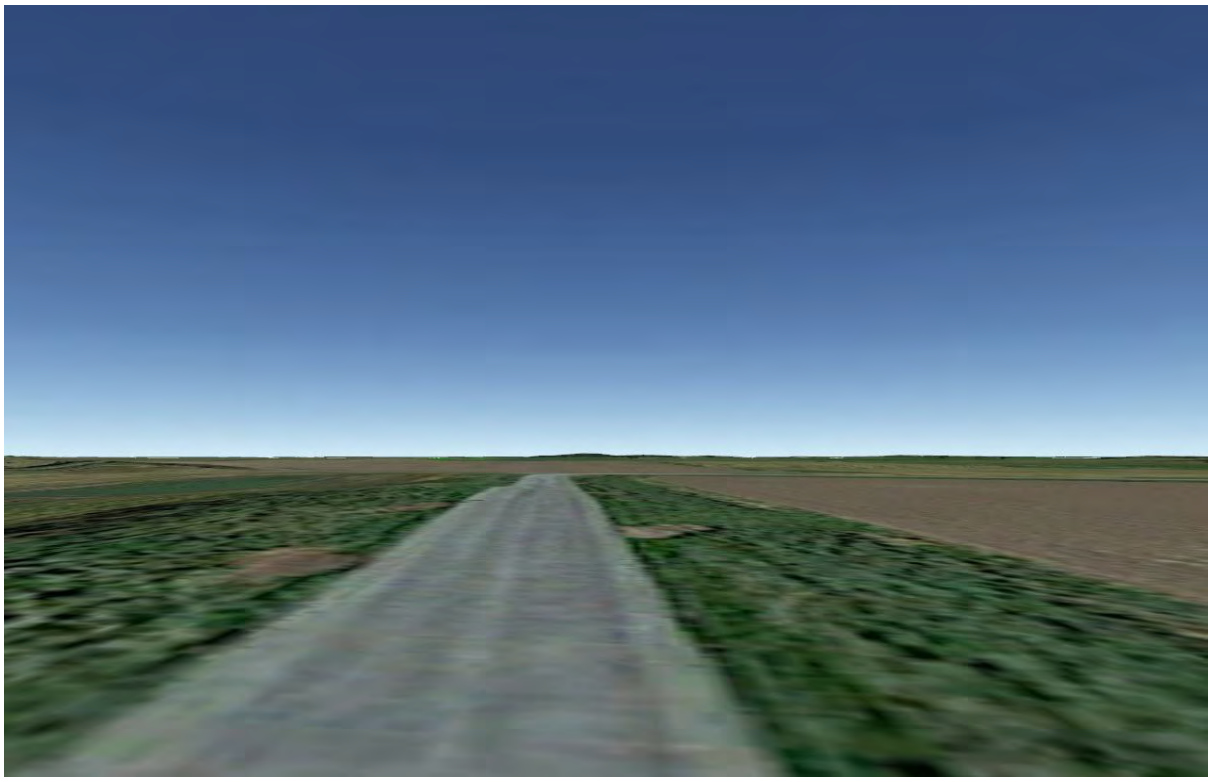
Receptor 3



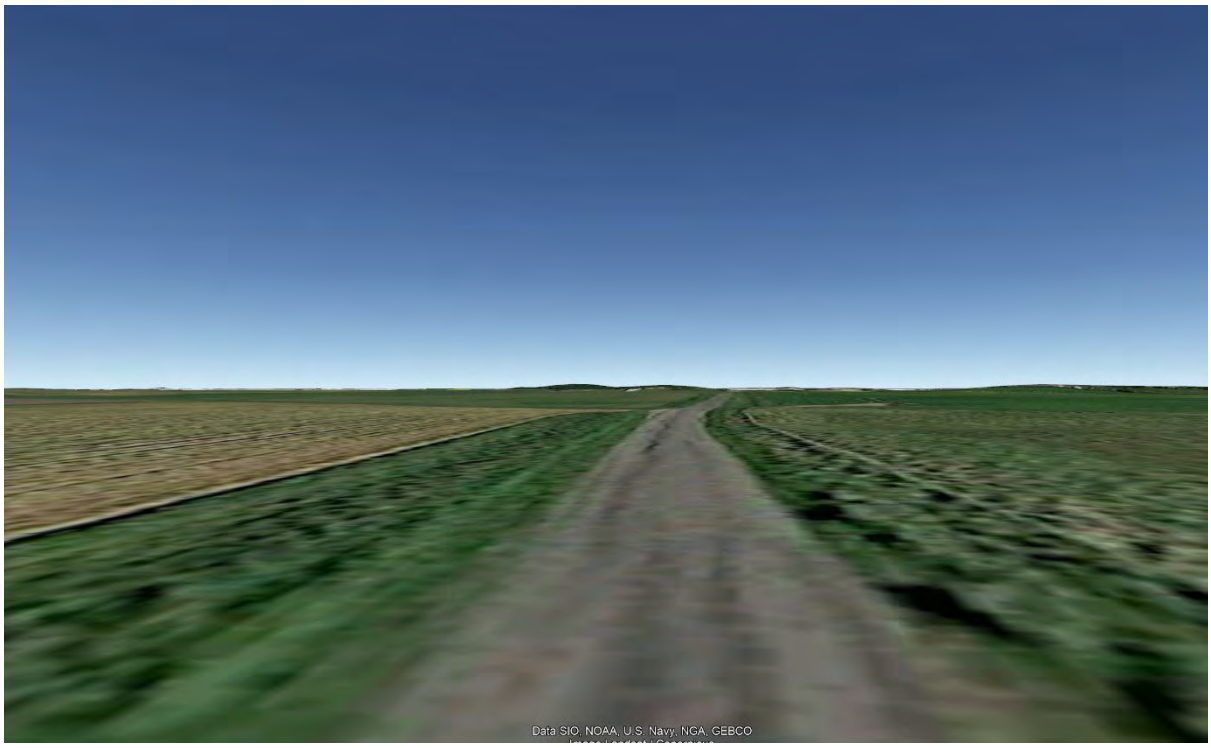
Receptor 4



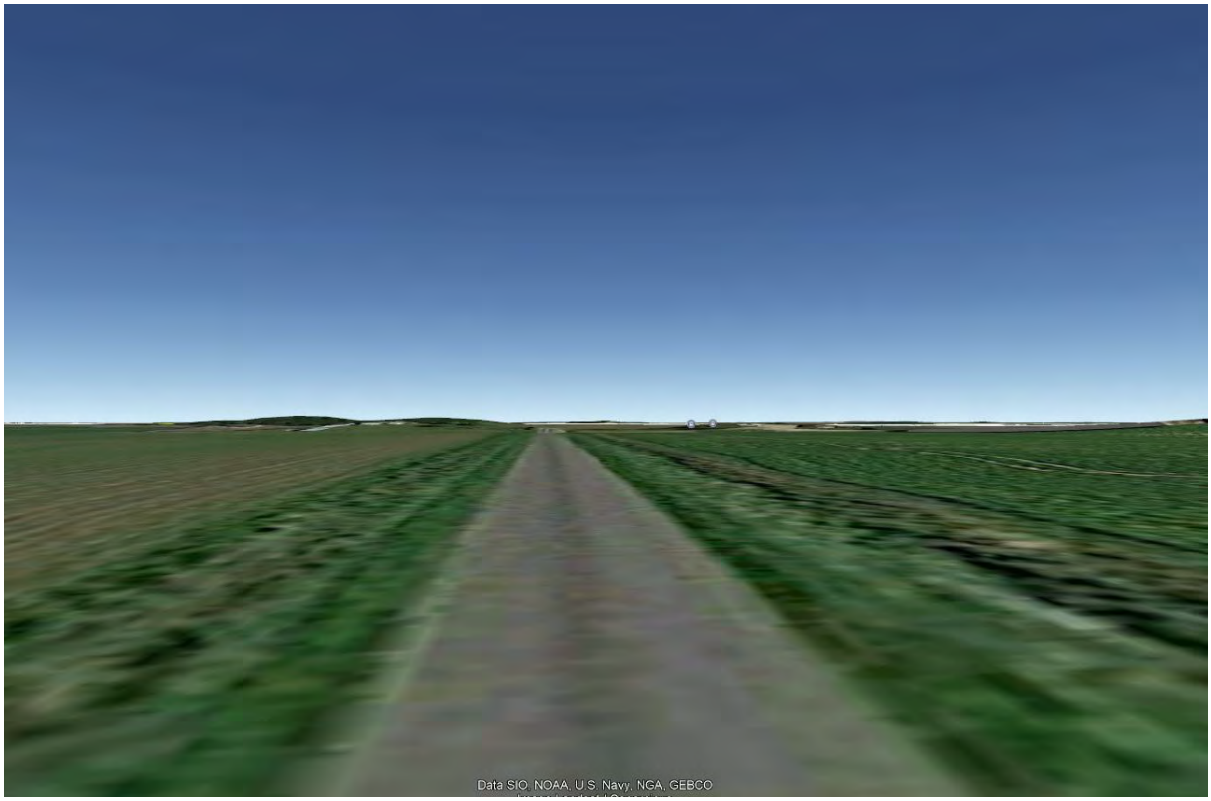
Receptor 5



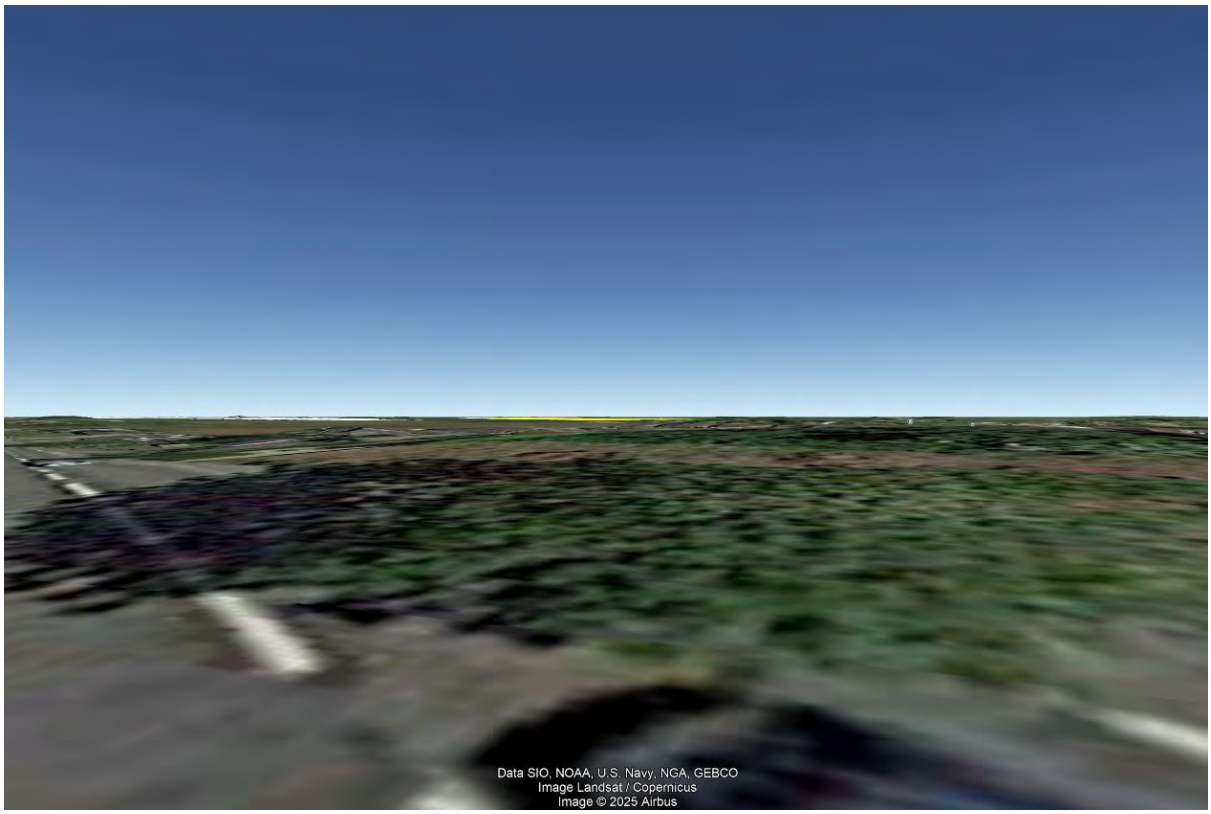
Receptor 6



Receptor 7



Receptor 8



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Receptor 9

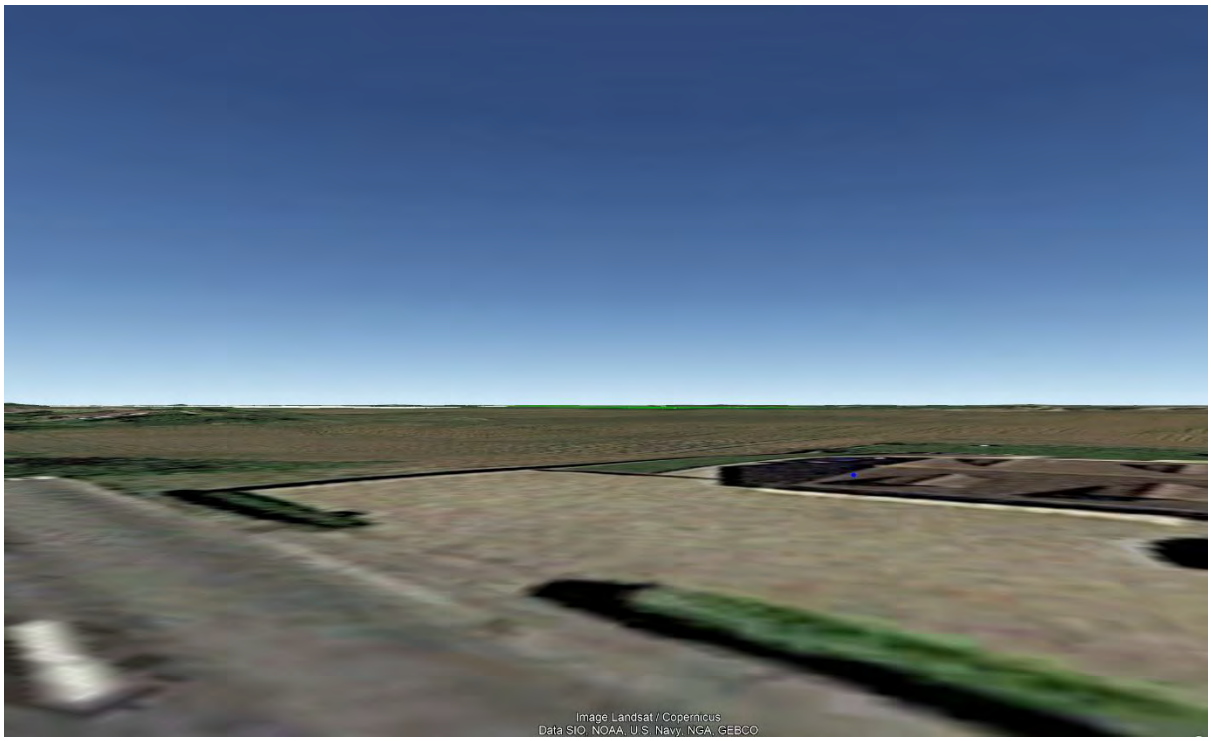
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

50
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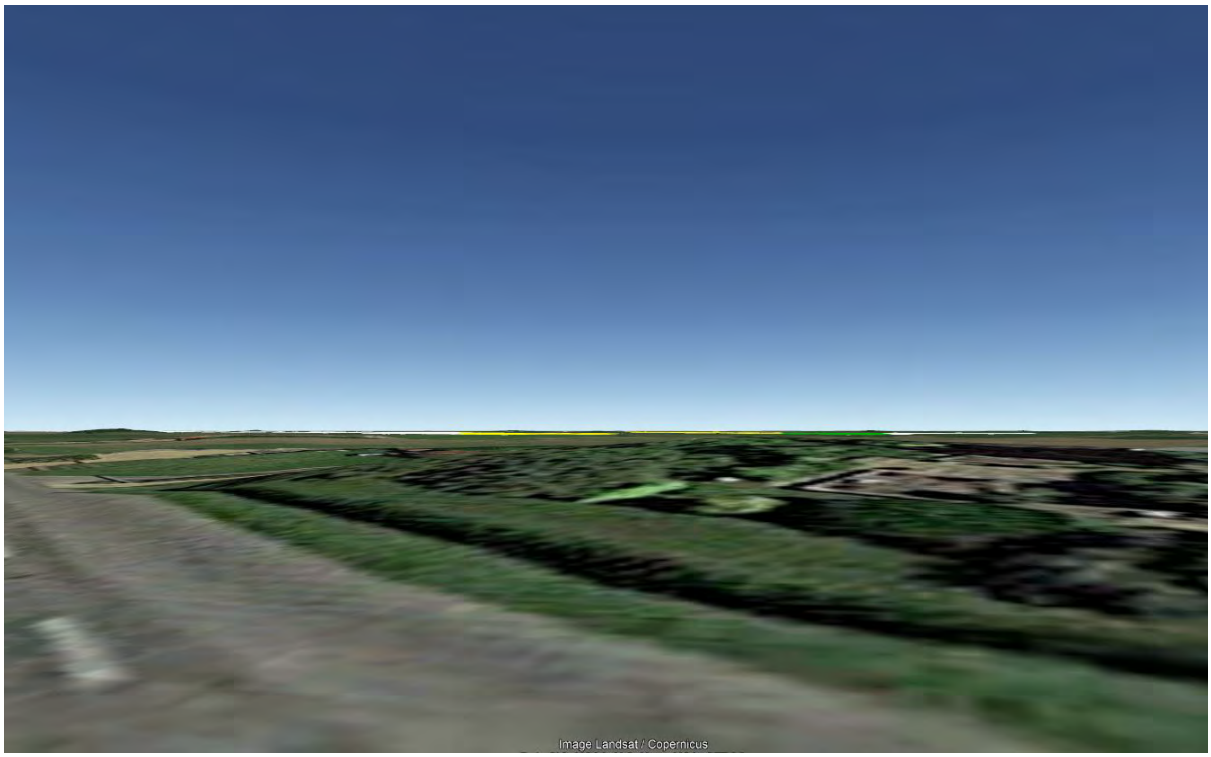
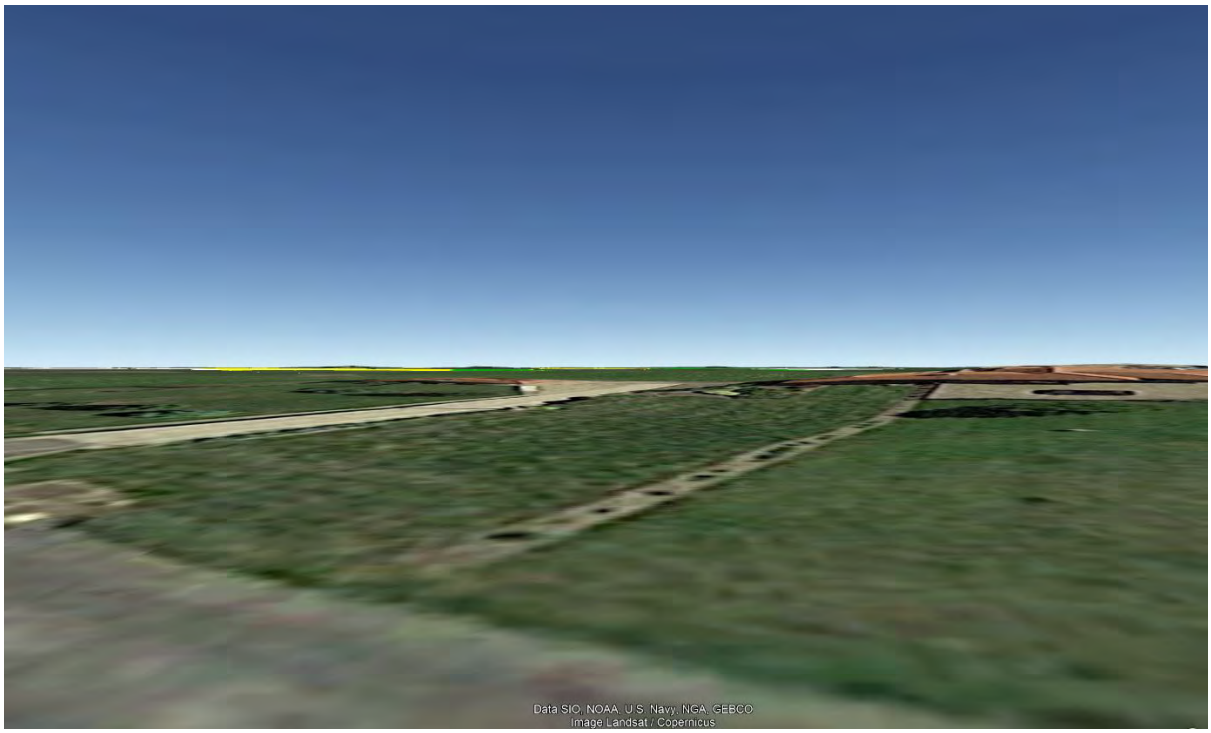
Receptor 10



Receptor 11


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus

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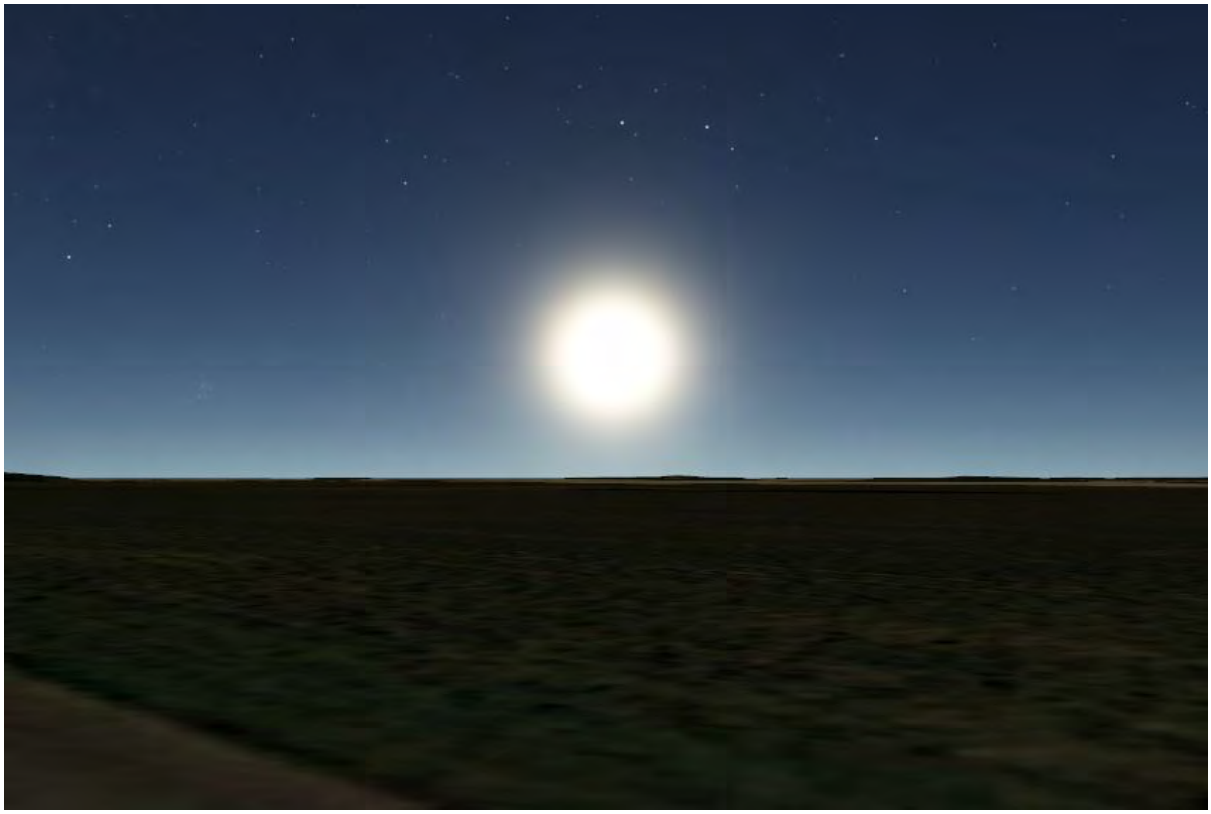
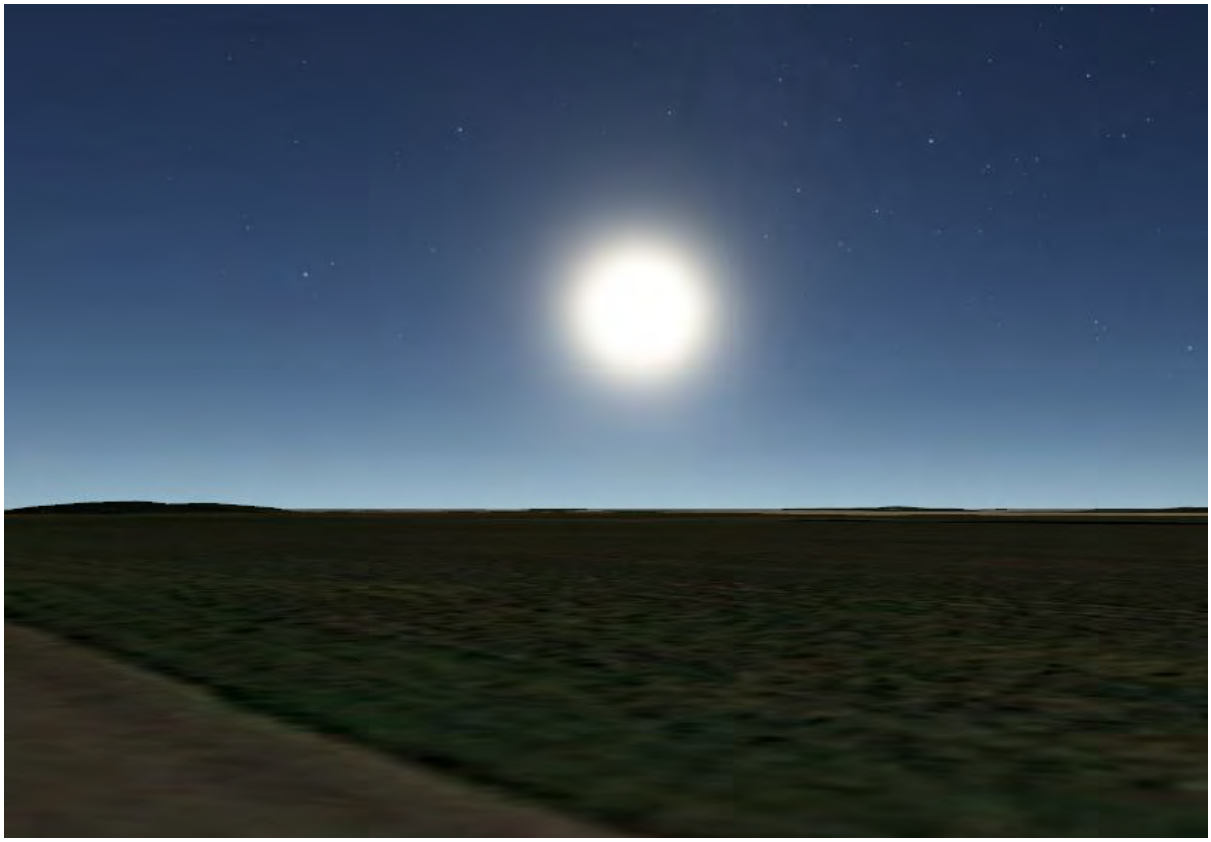
Receptor 12

May 1st 05:15 UTC

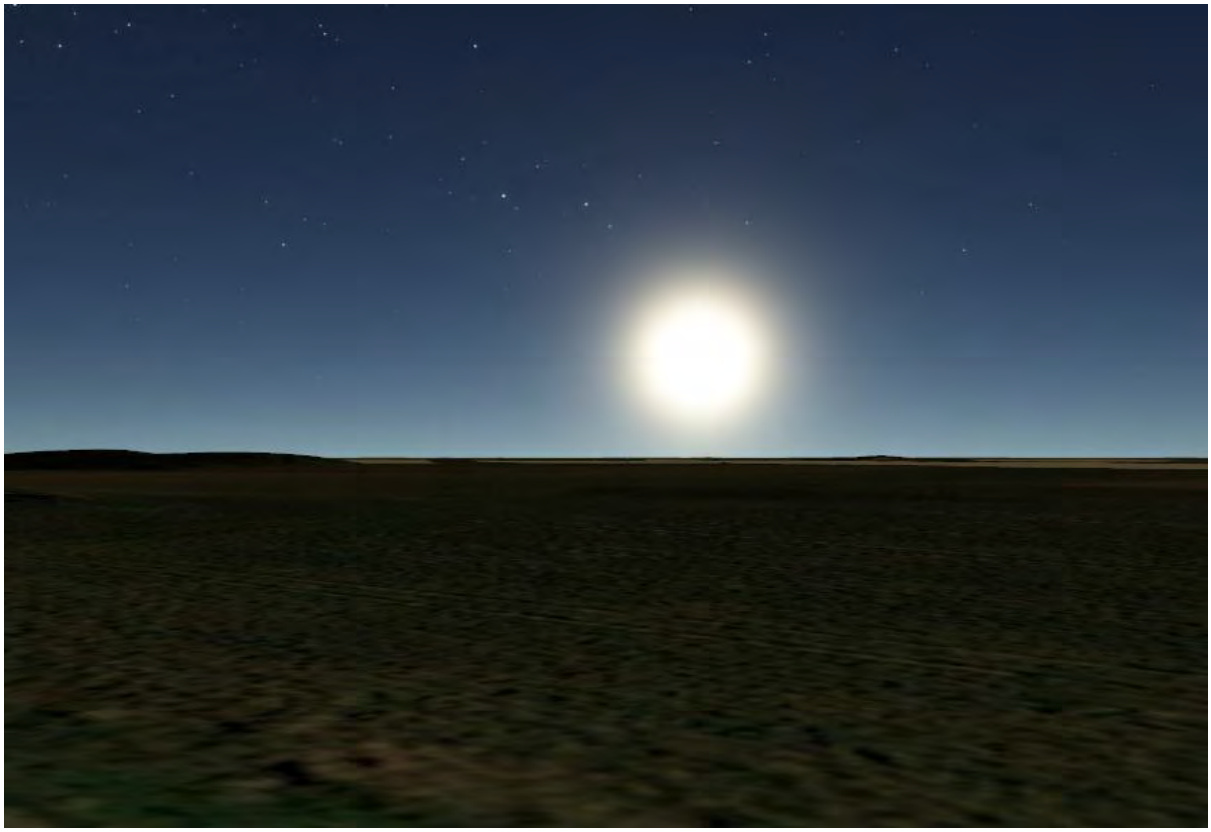


July 1st 05:00 UTC

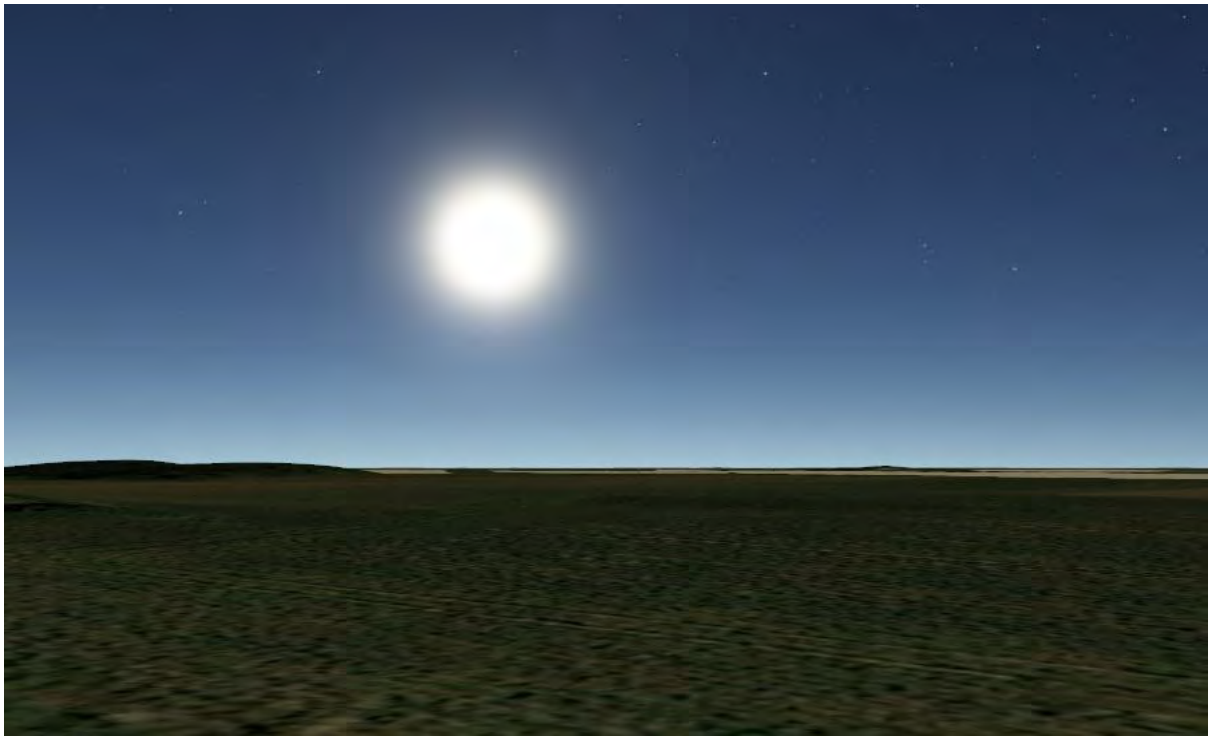


Receptor 13

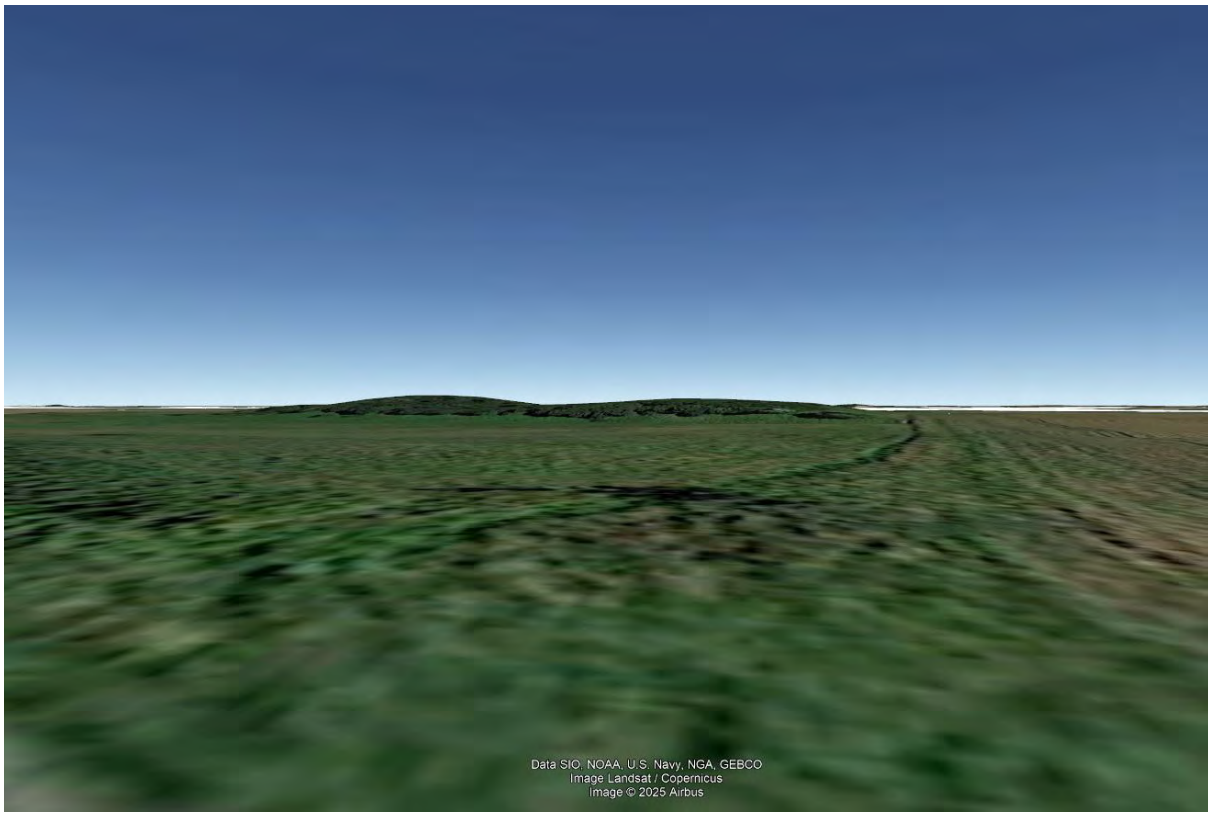
April 20th 05:30 UTC



August 1st 05:15 UTC



Receptor 14


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2025 Airbus

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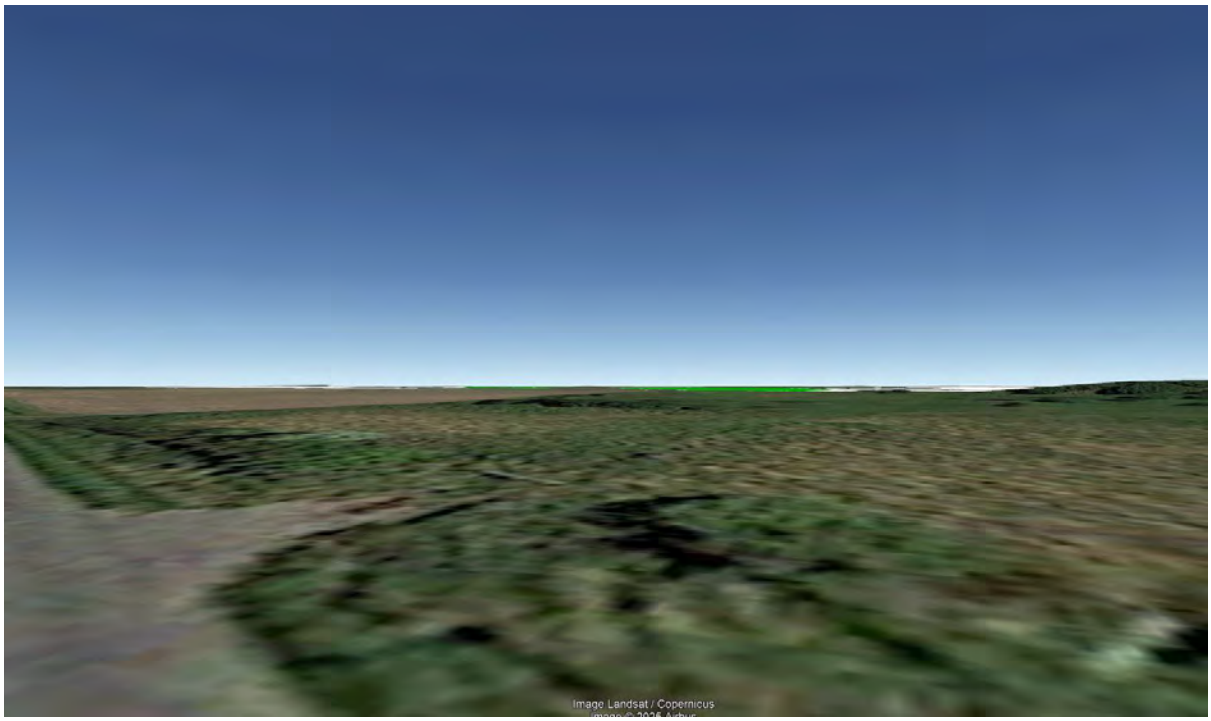
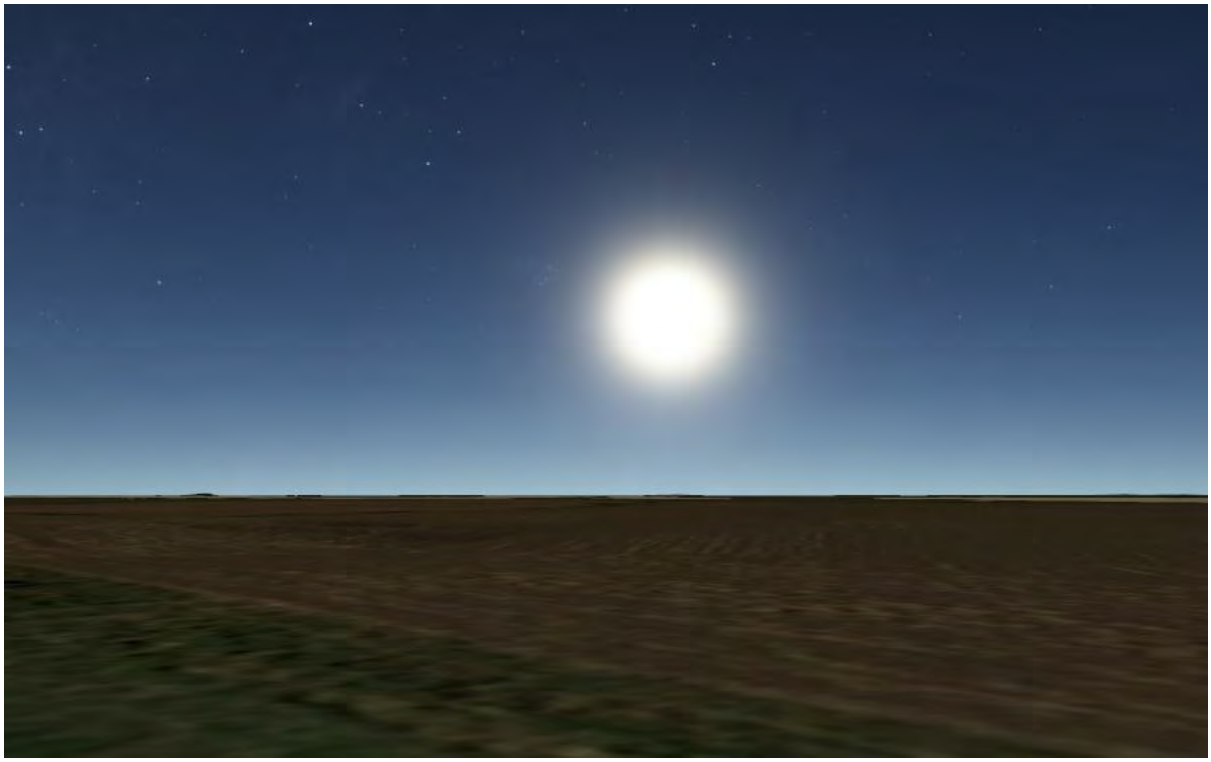
Receptor 15

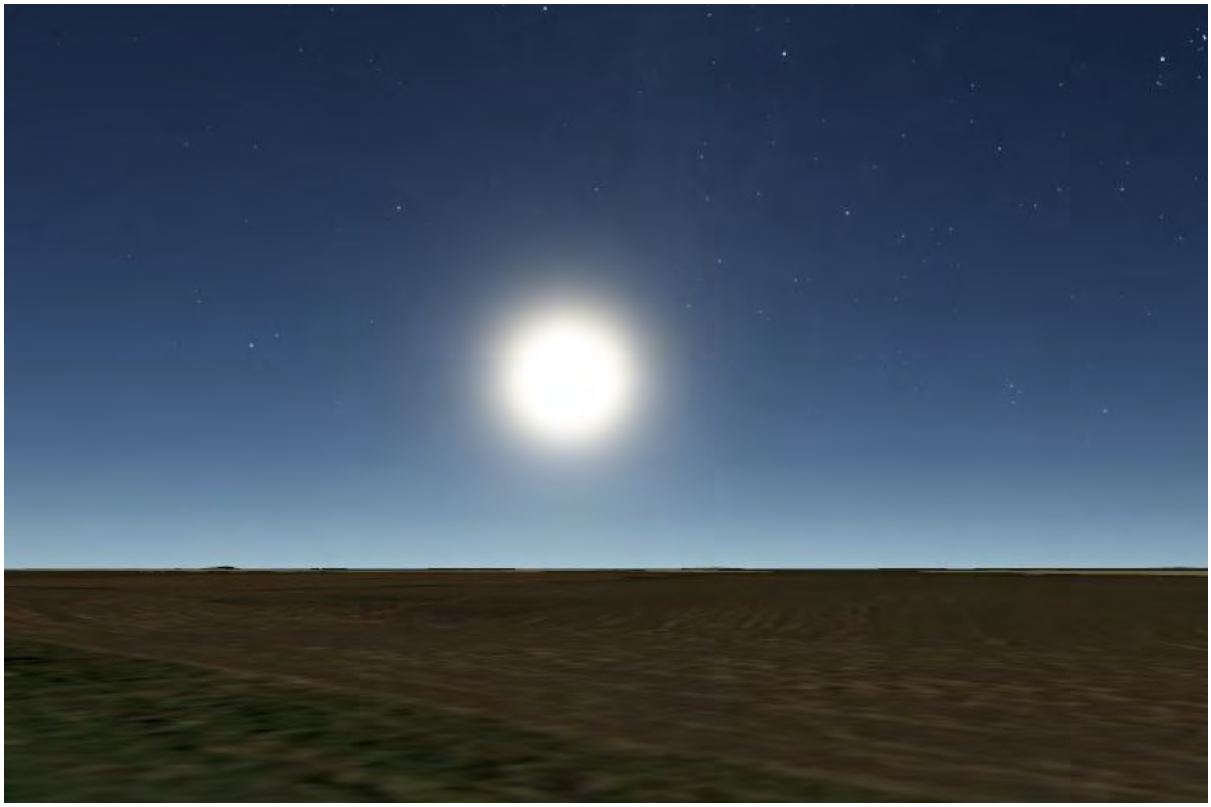


Receptor 16

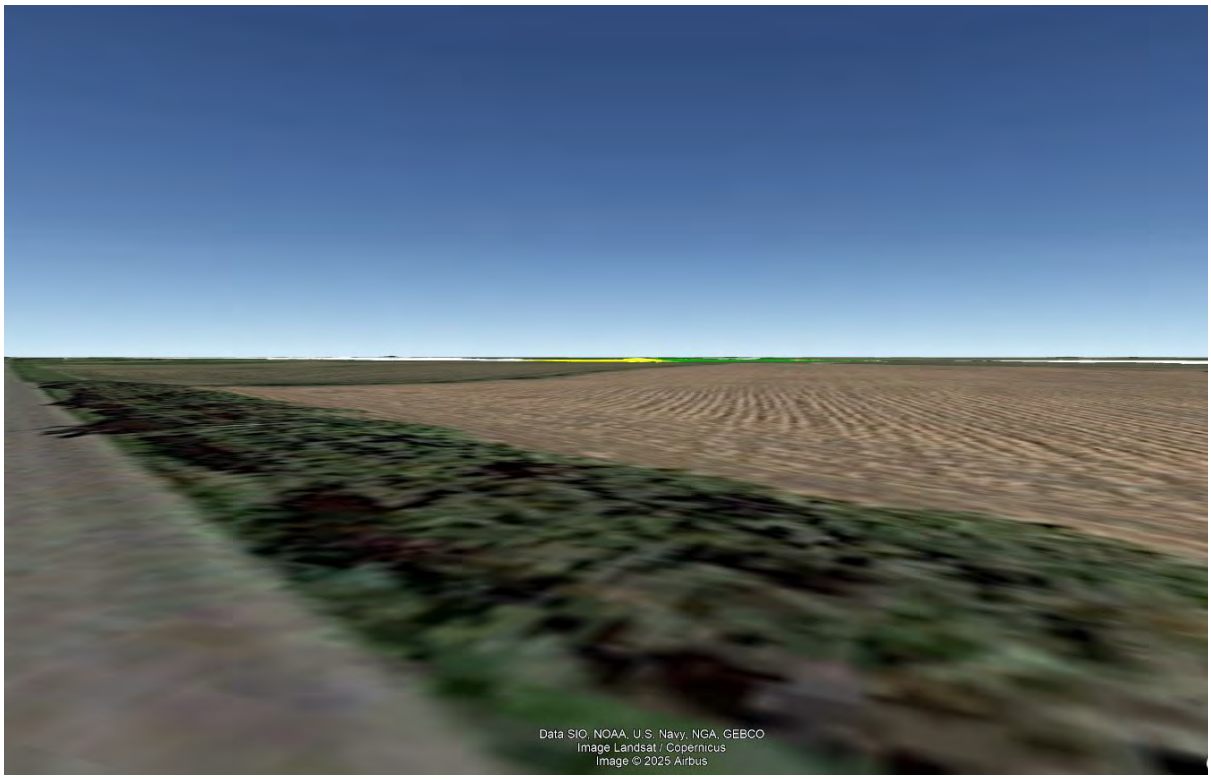
May 15th 05:15 UTC



July 1st 05:00 UTC



Receptor 17


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2025 Airbus

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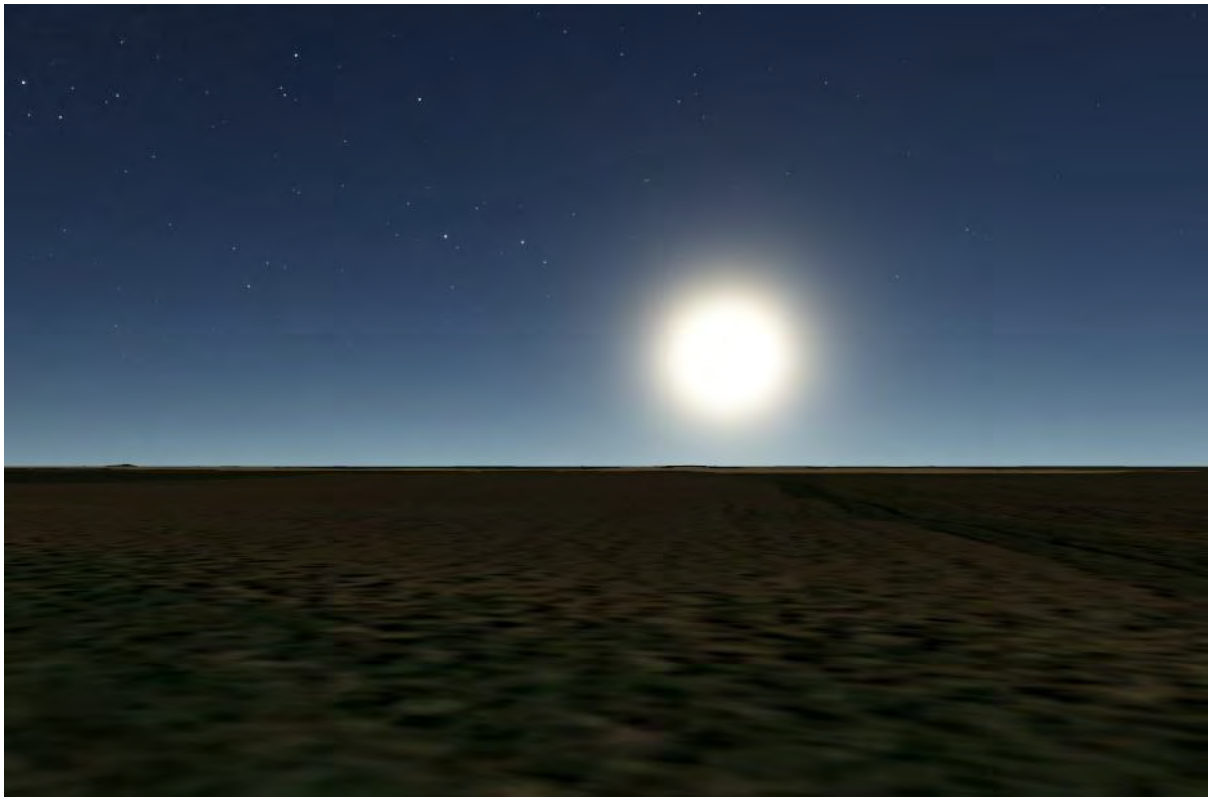
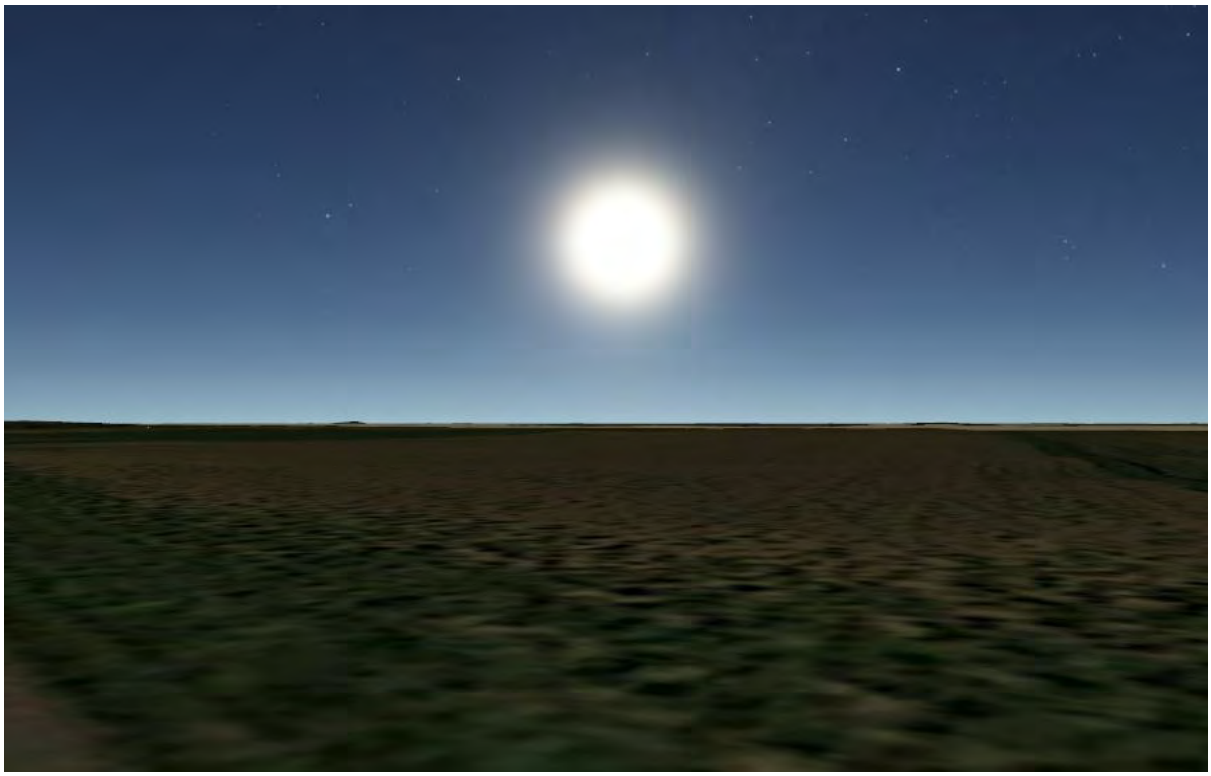
Receptor 18

April 15th 05:45 UTC

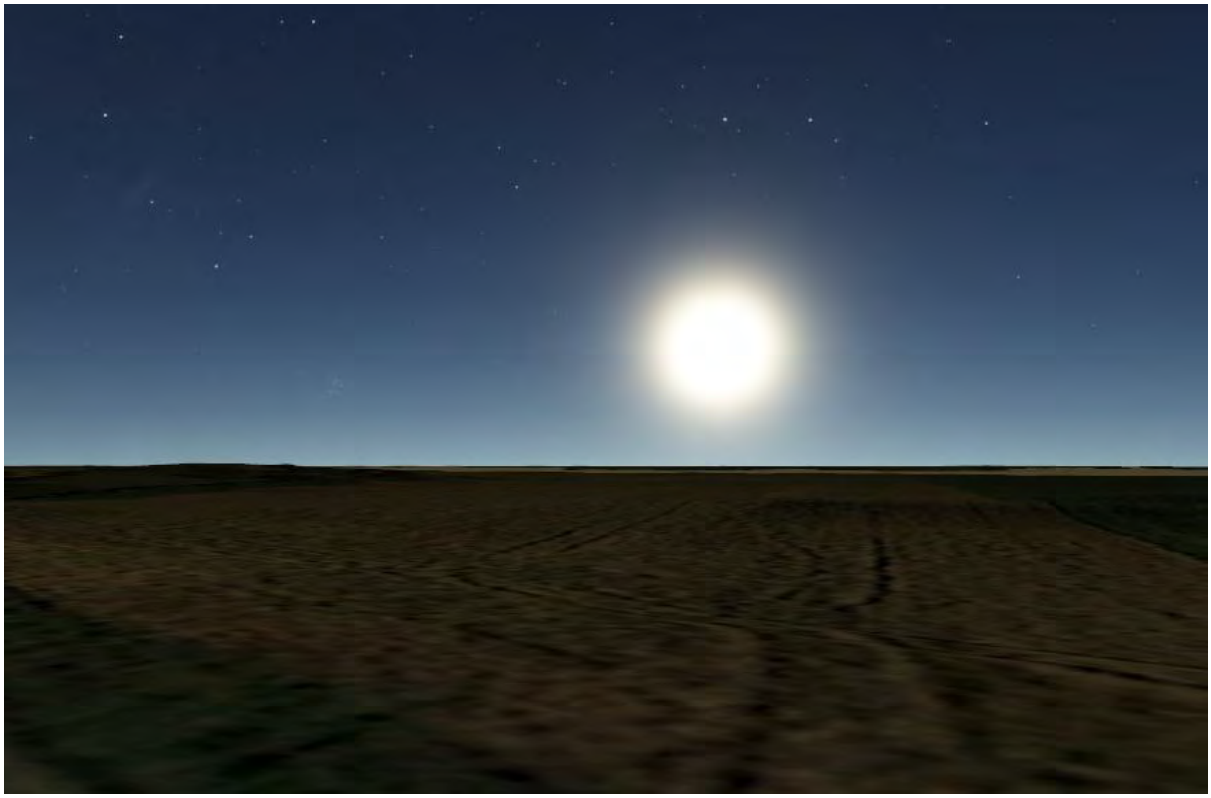


July 1st 05:00 UTC

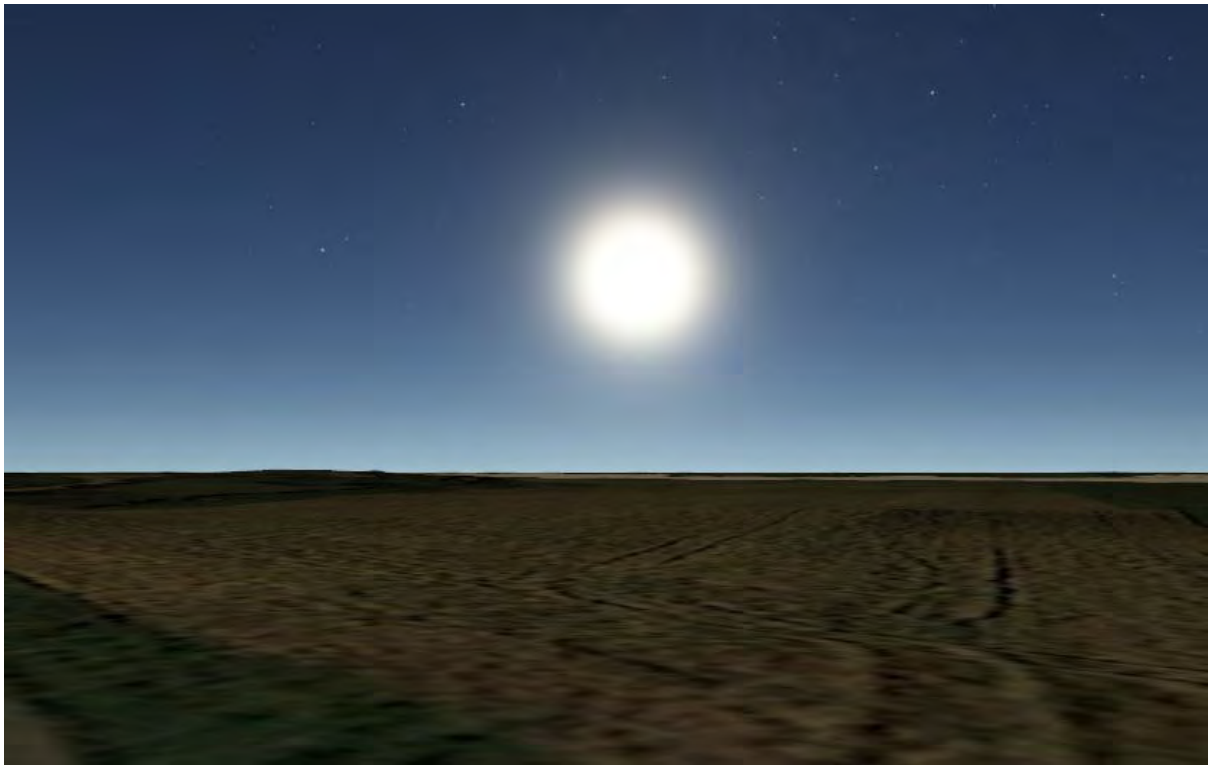


Receptor 19

May 1st 05:15 UTC



July 1st 05:00 UTC



Receptor 20

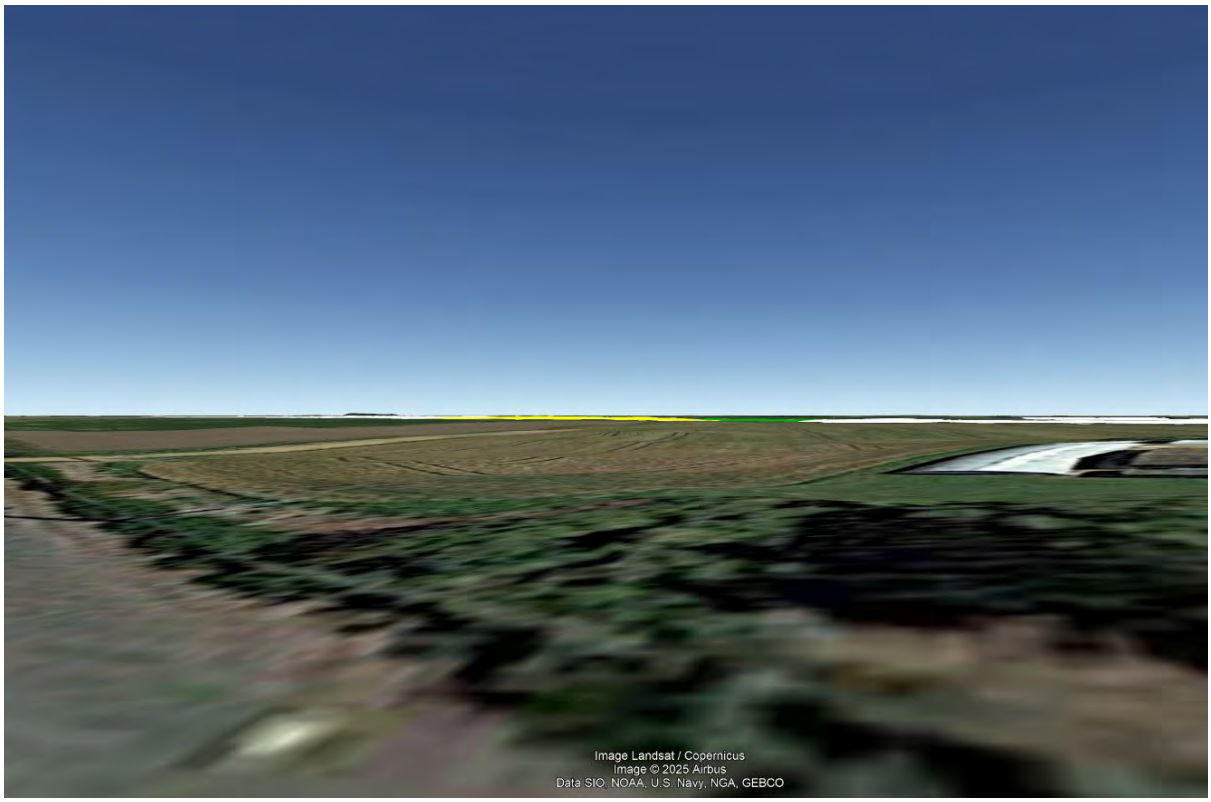


Image Landsat / Copernicus
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Receptor 21

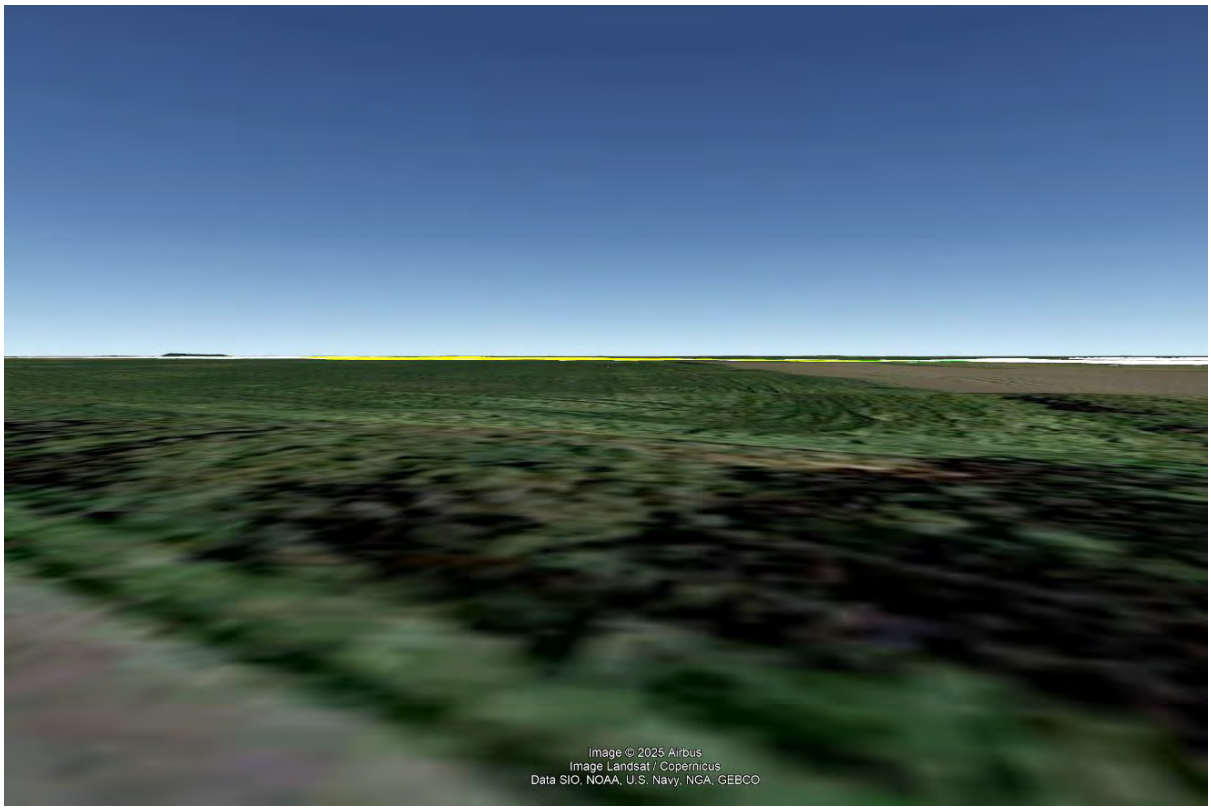
Image © 2025 Airbus
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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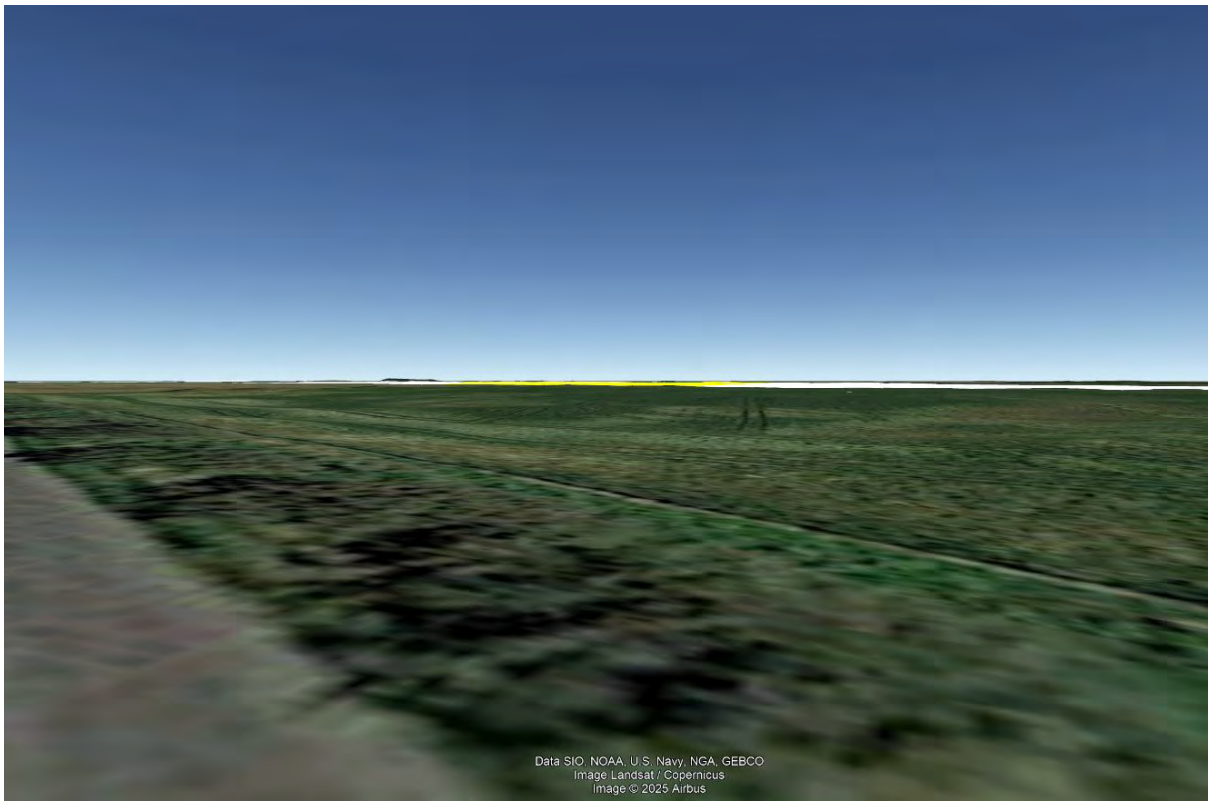
Receptor 22


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2025 Airbus

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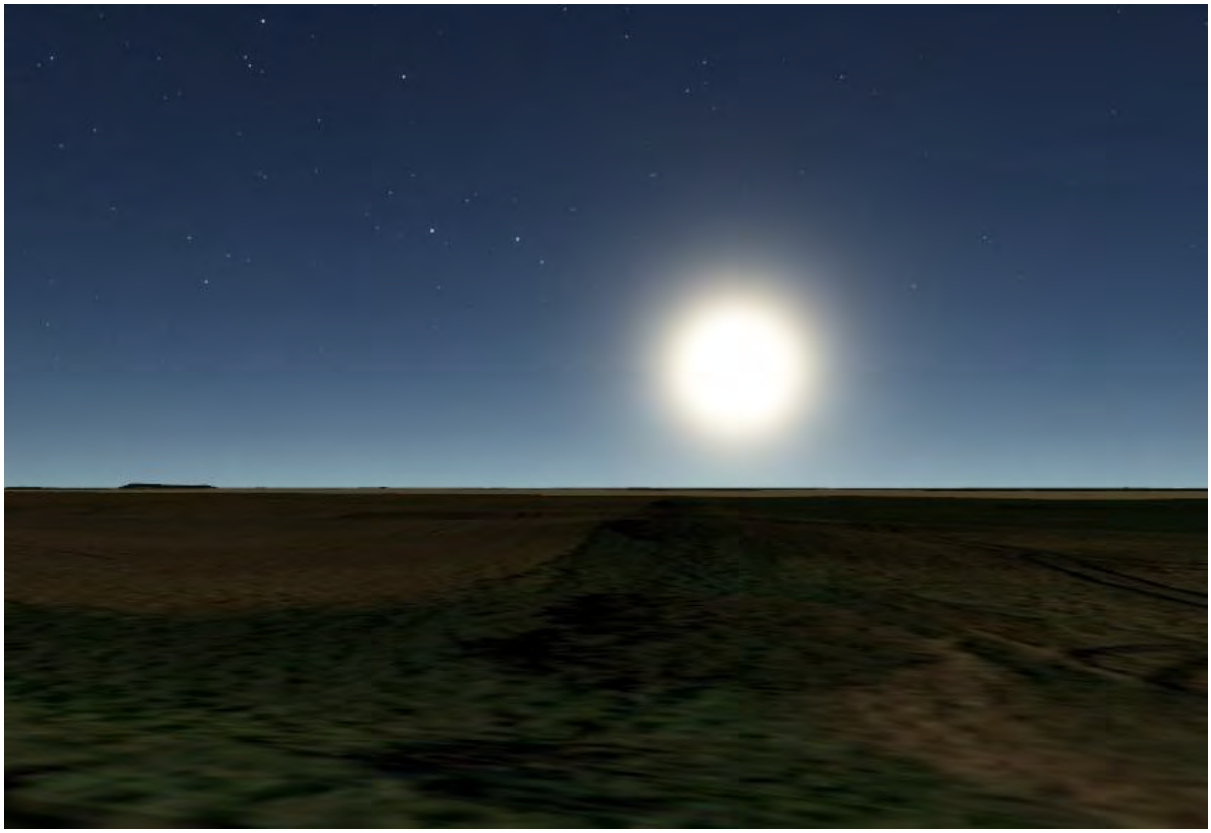
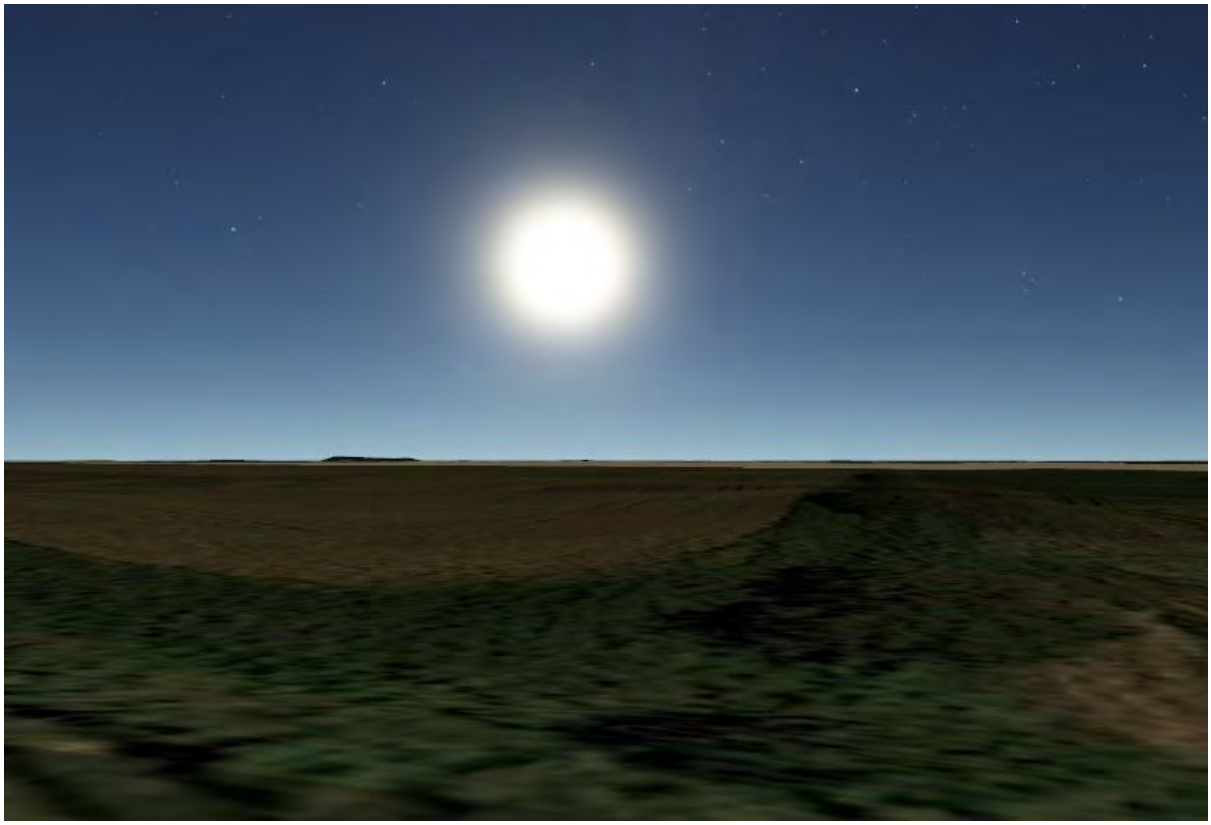
Receptor 23

April 15th 05:45 UTC

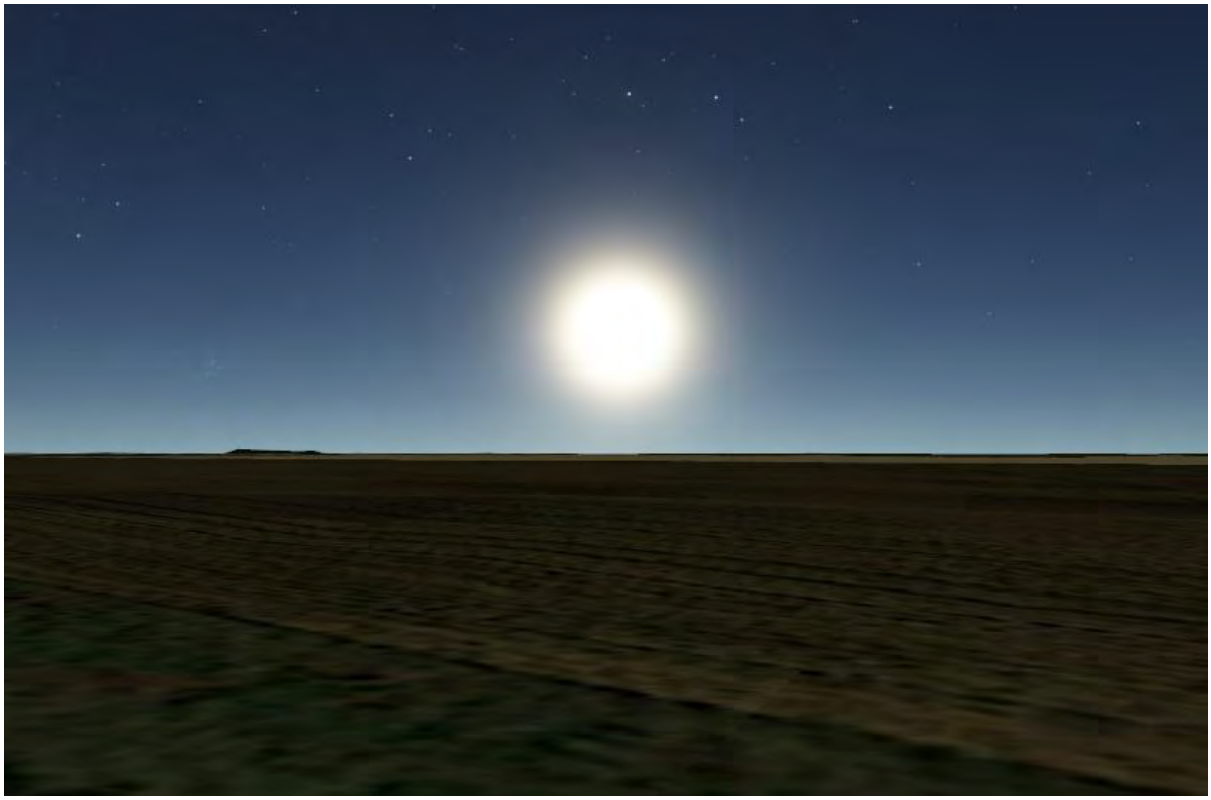


July 1st 05:00 UTC



Receptor 24

May 1st 05:15 UTC



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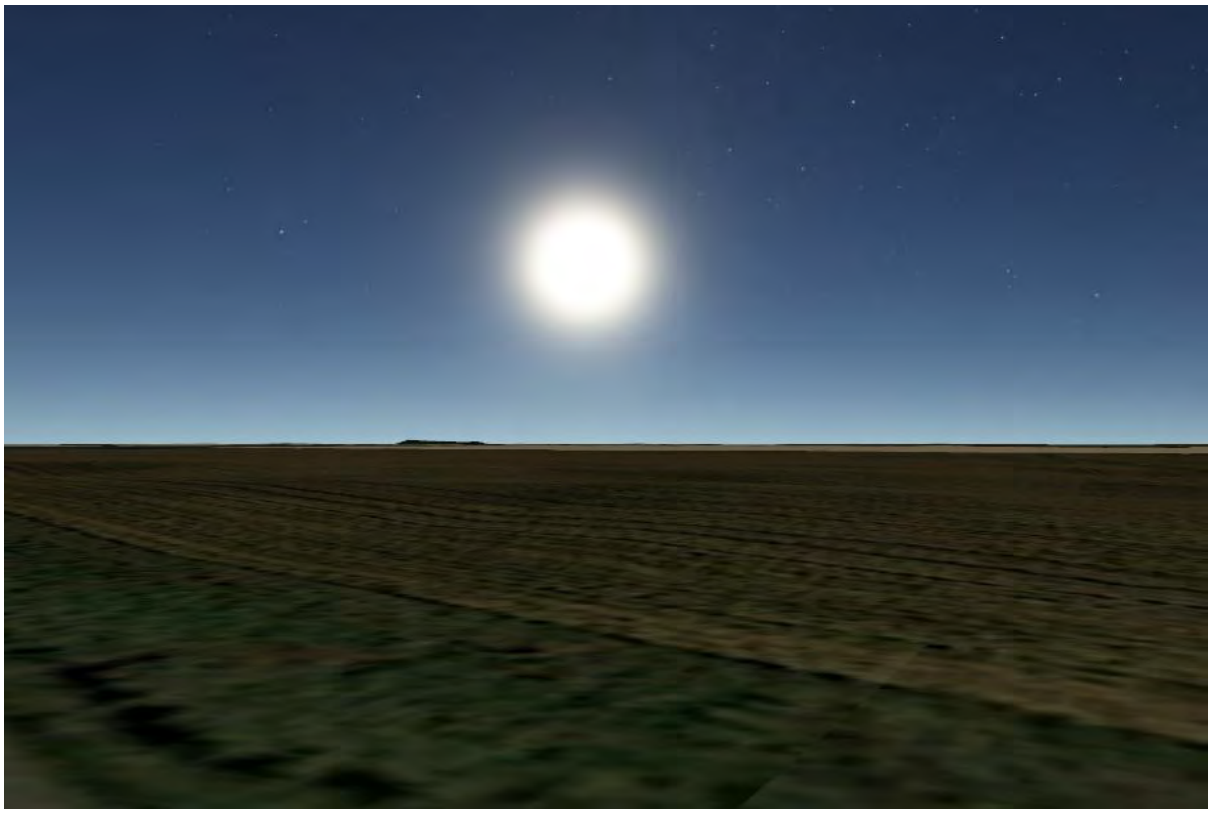
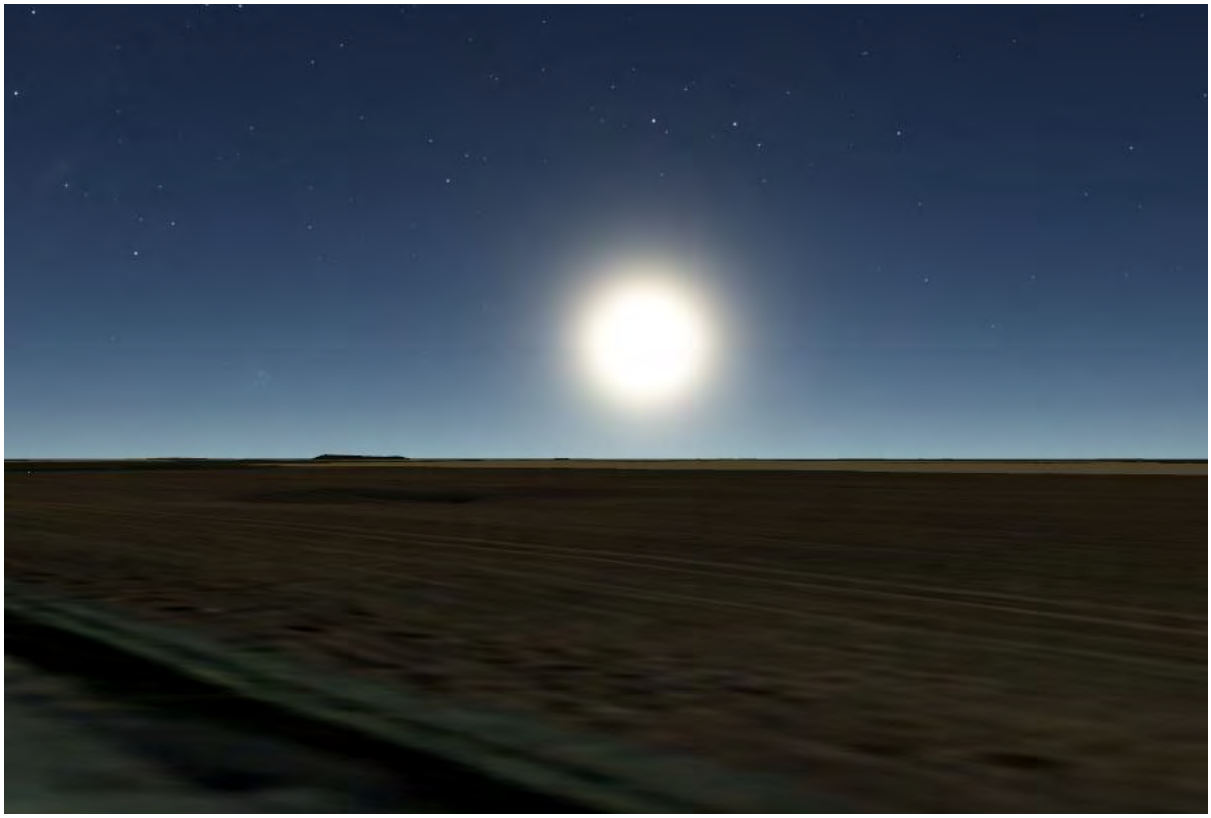
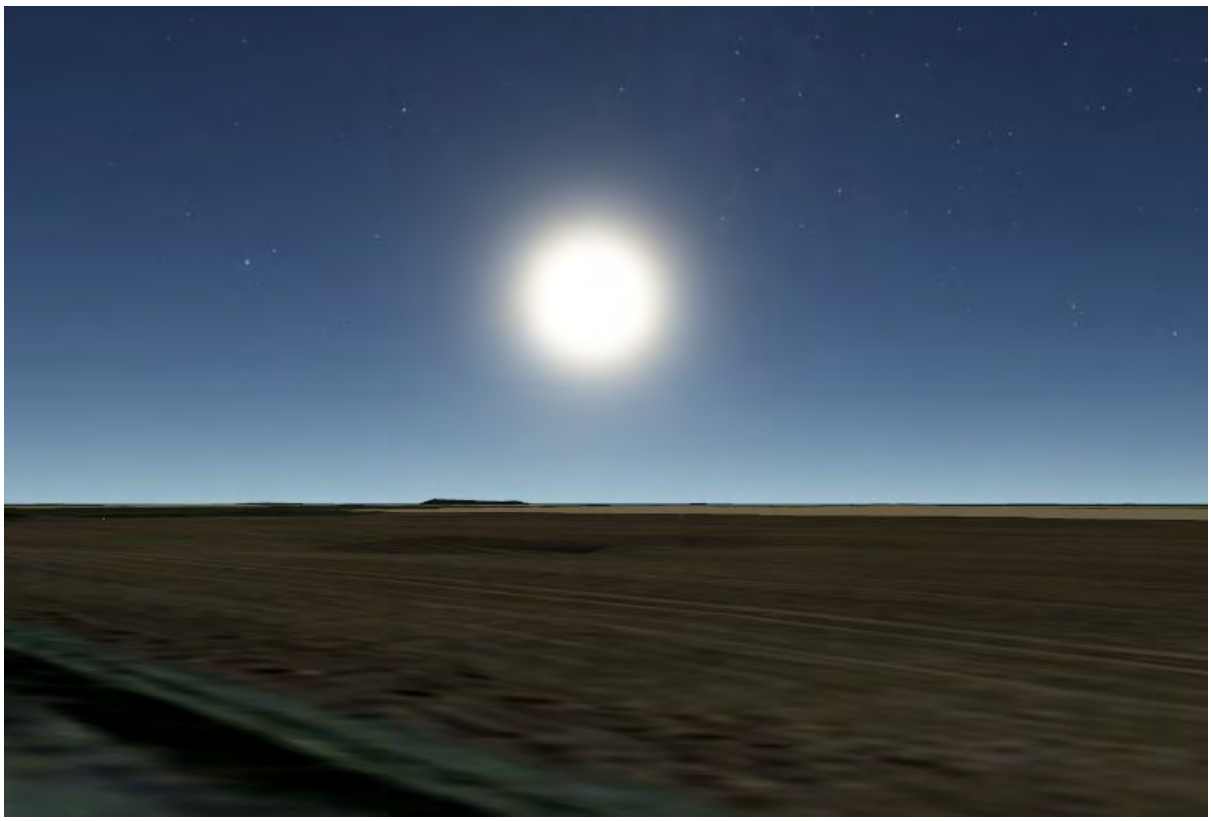


Receptor 25

May 1st 05:15 UTC

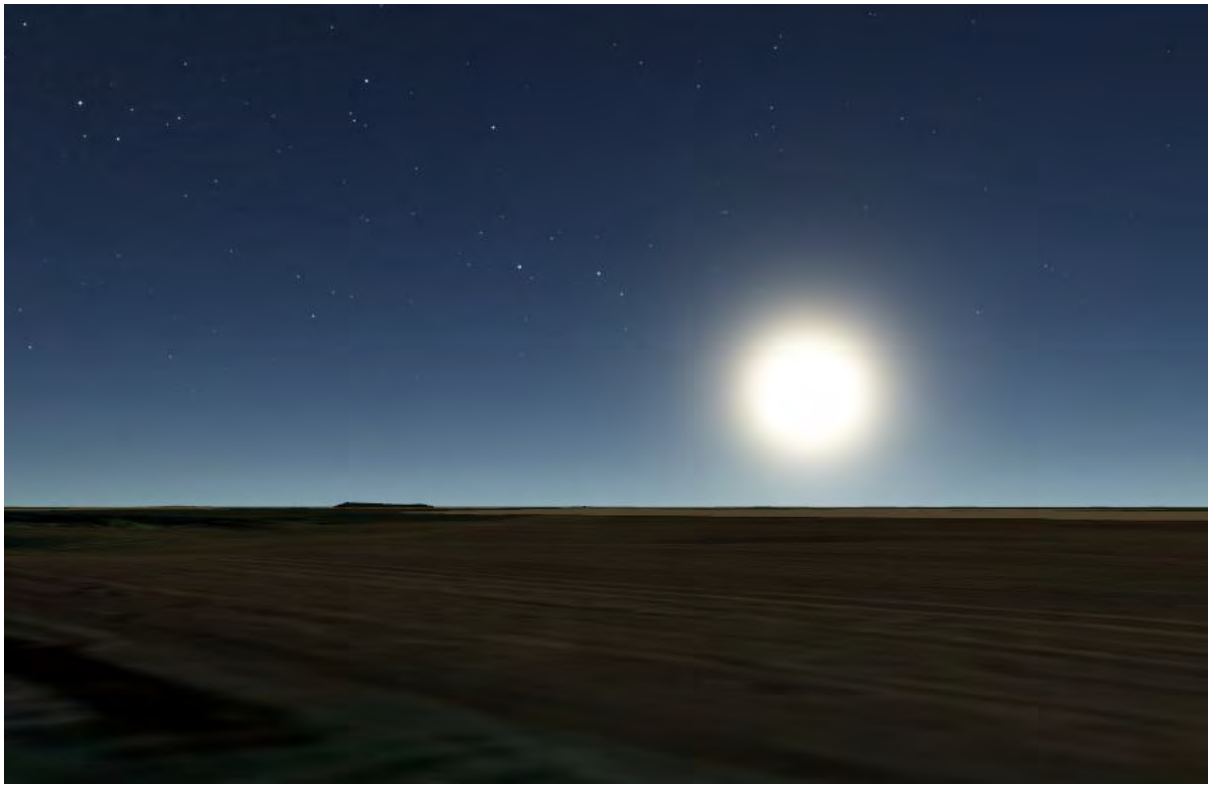


July 1st 05:00 UTC

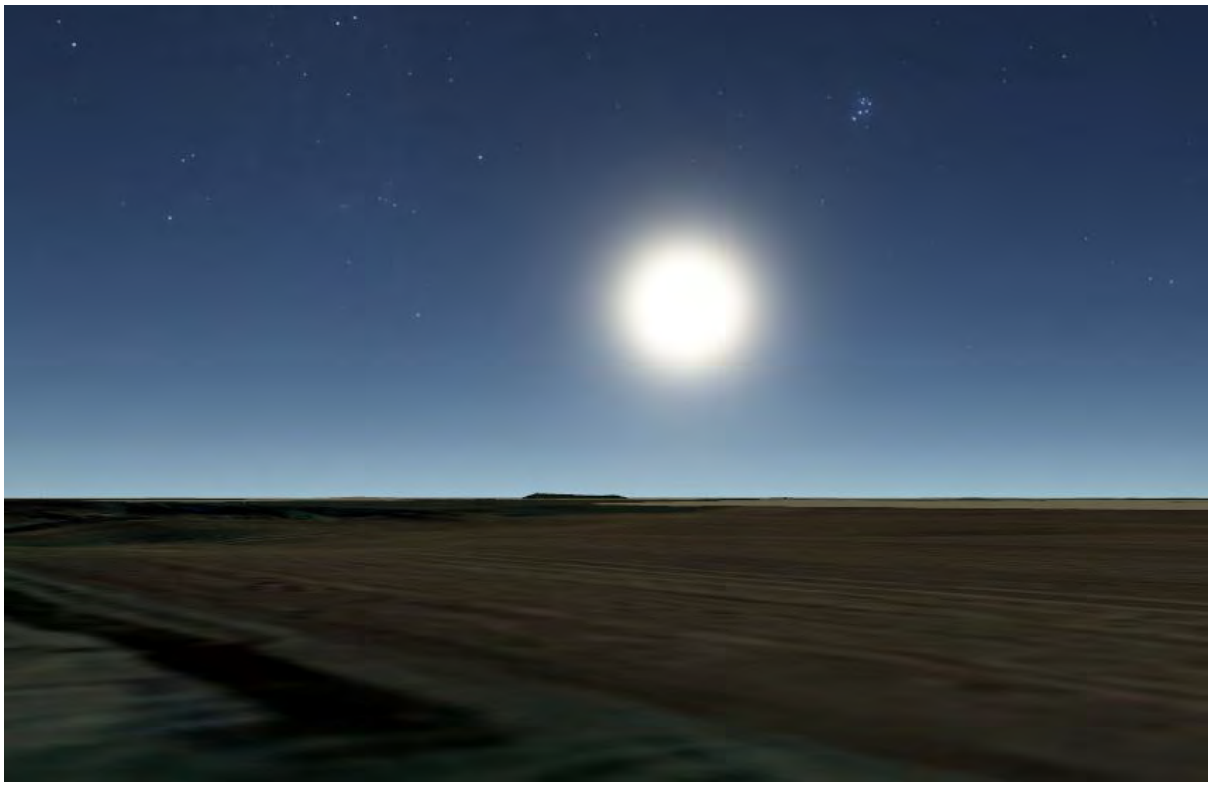


Receptor 26

April 15th 05:45 UTC



June 1st 05:00 UTC



Receptor 27

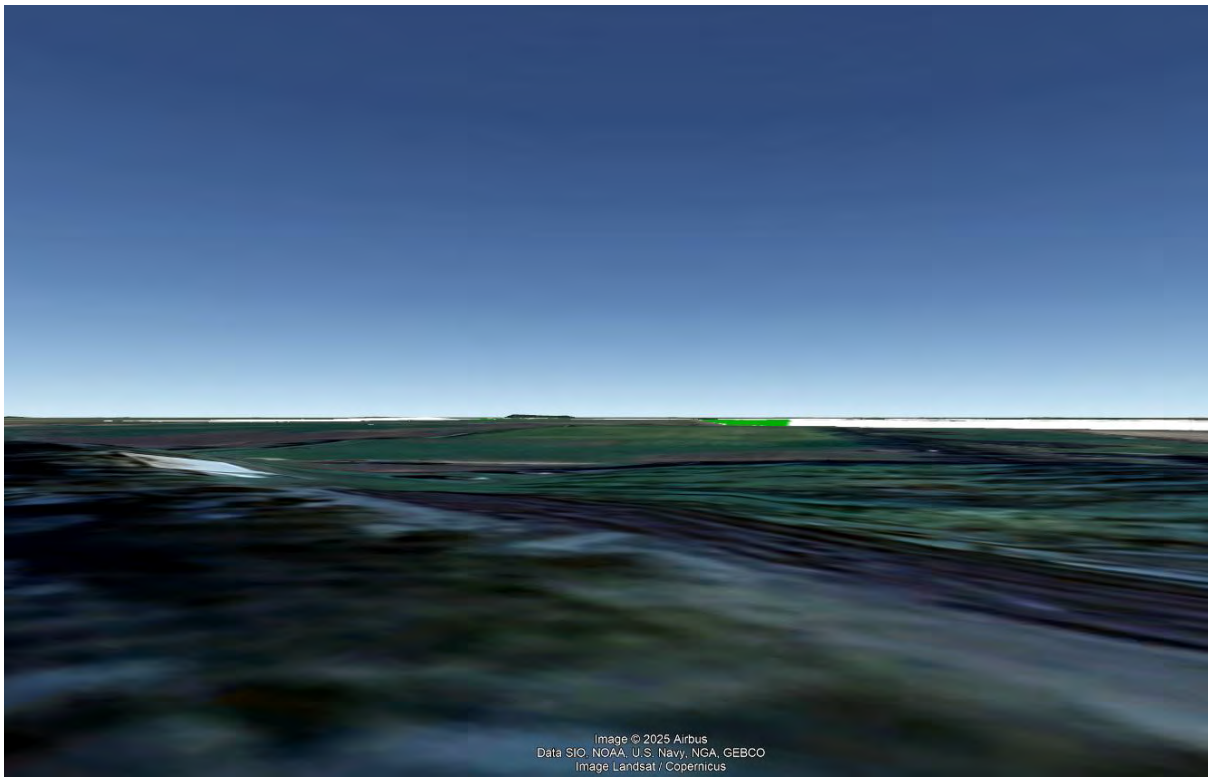

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Image Landsat / Copernicus

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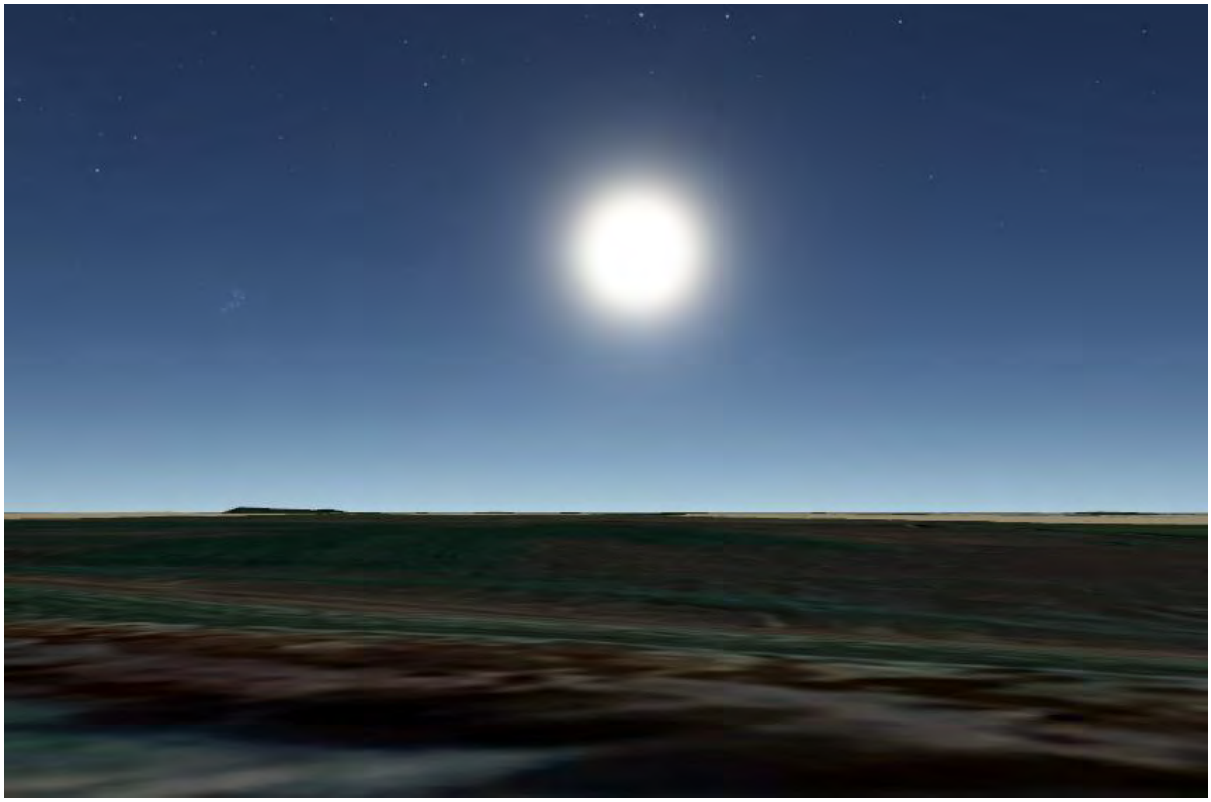
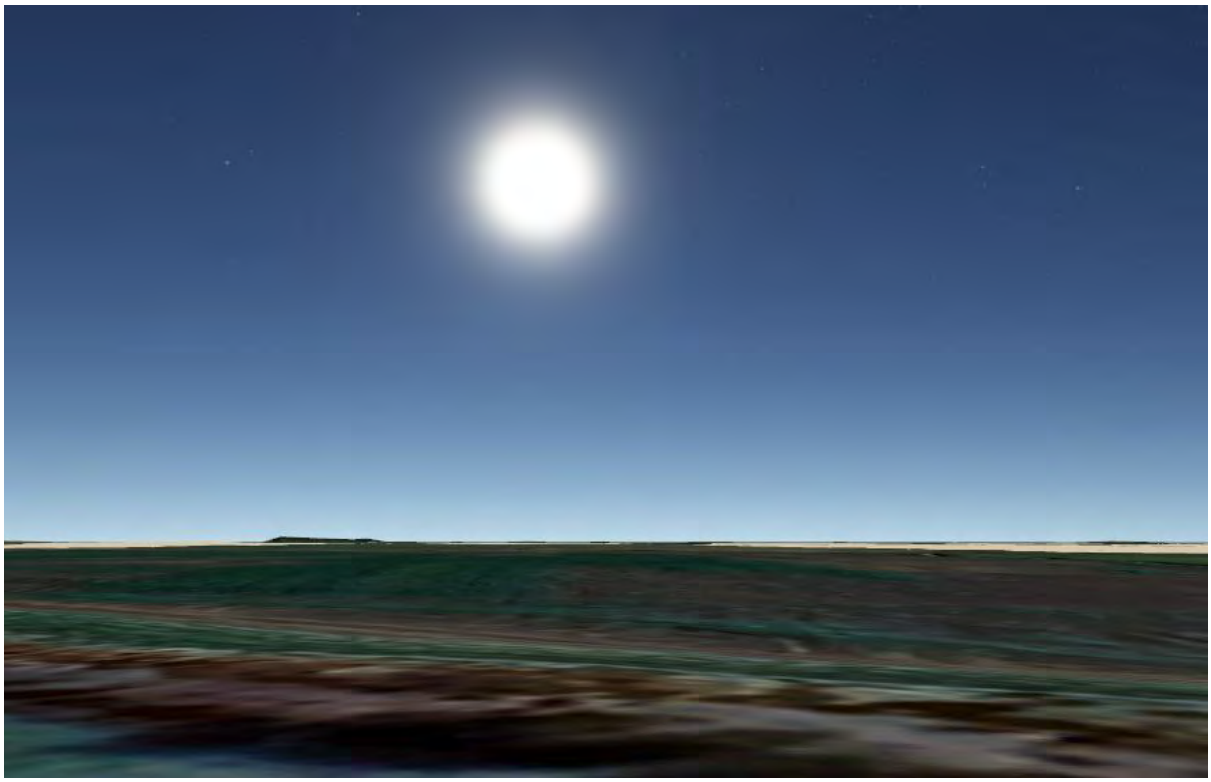
Receptor 28

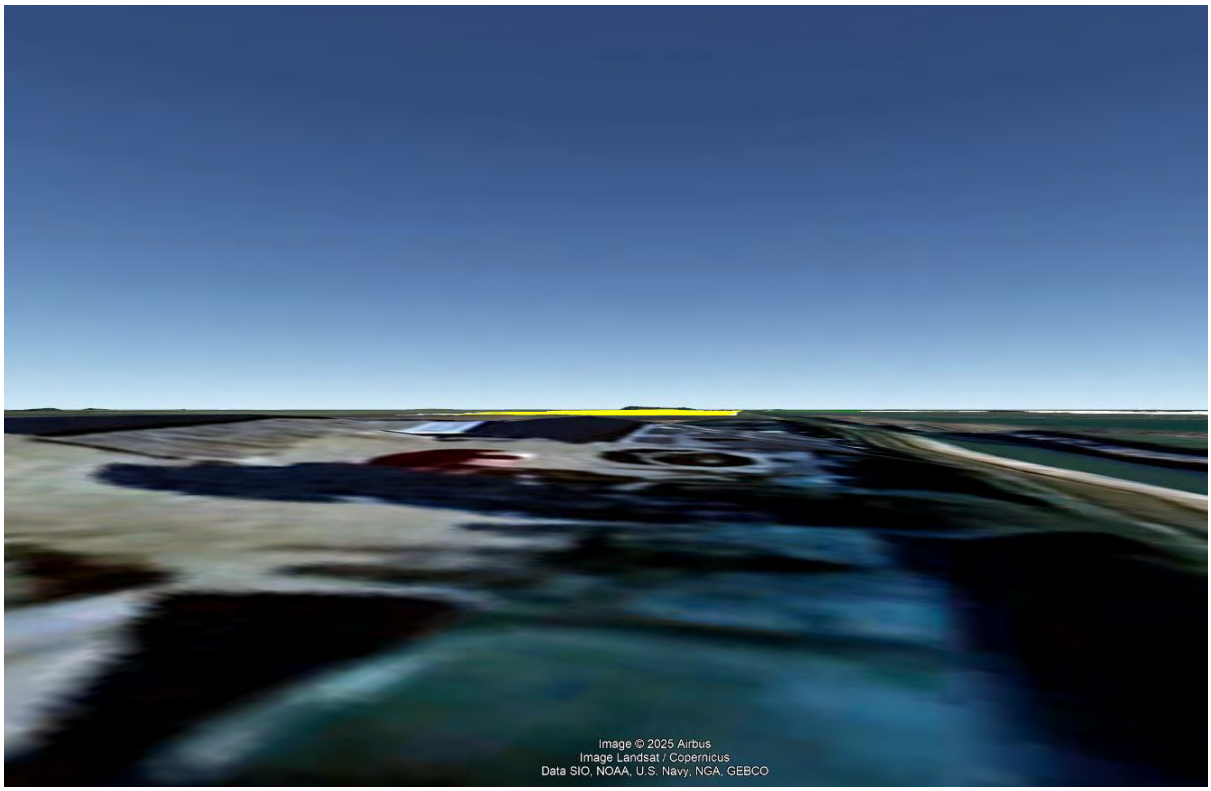
May 1st 06:00 UTC



July 1st 06:00 UTC



Receptor 29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Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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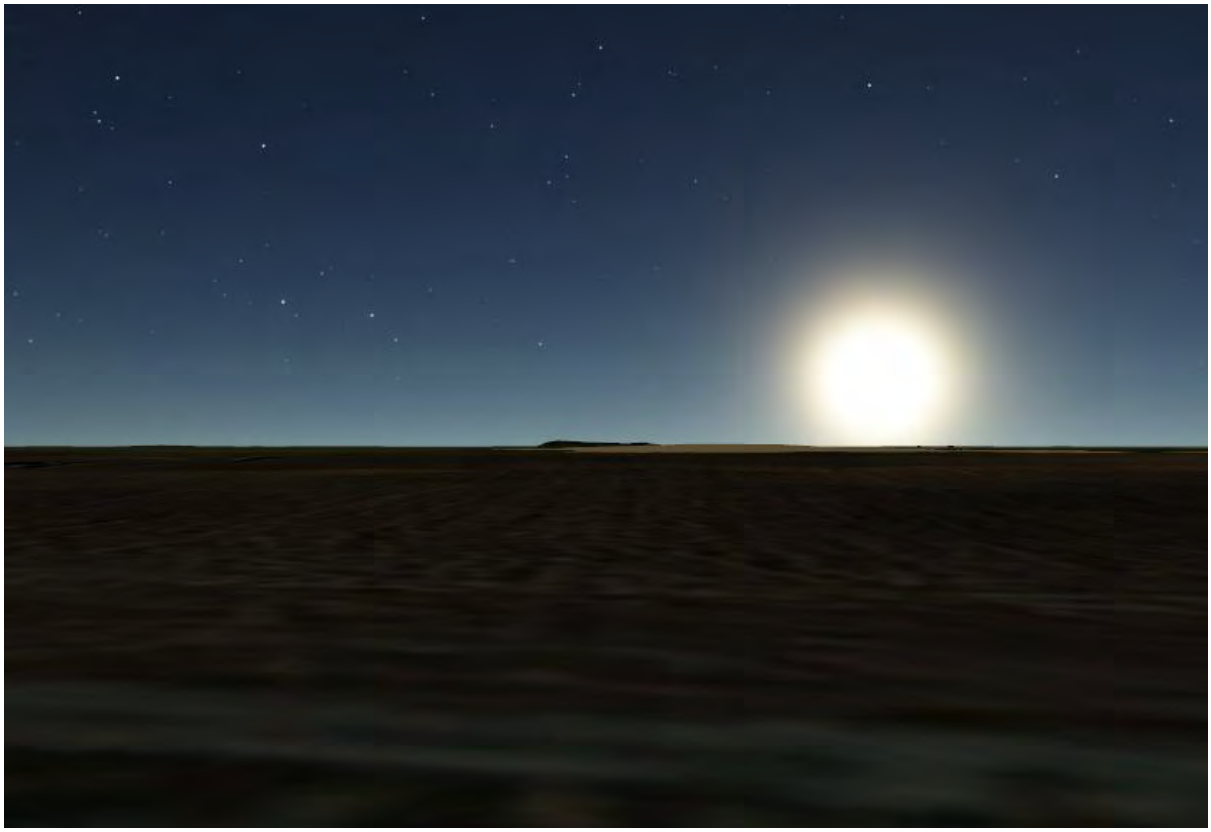
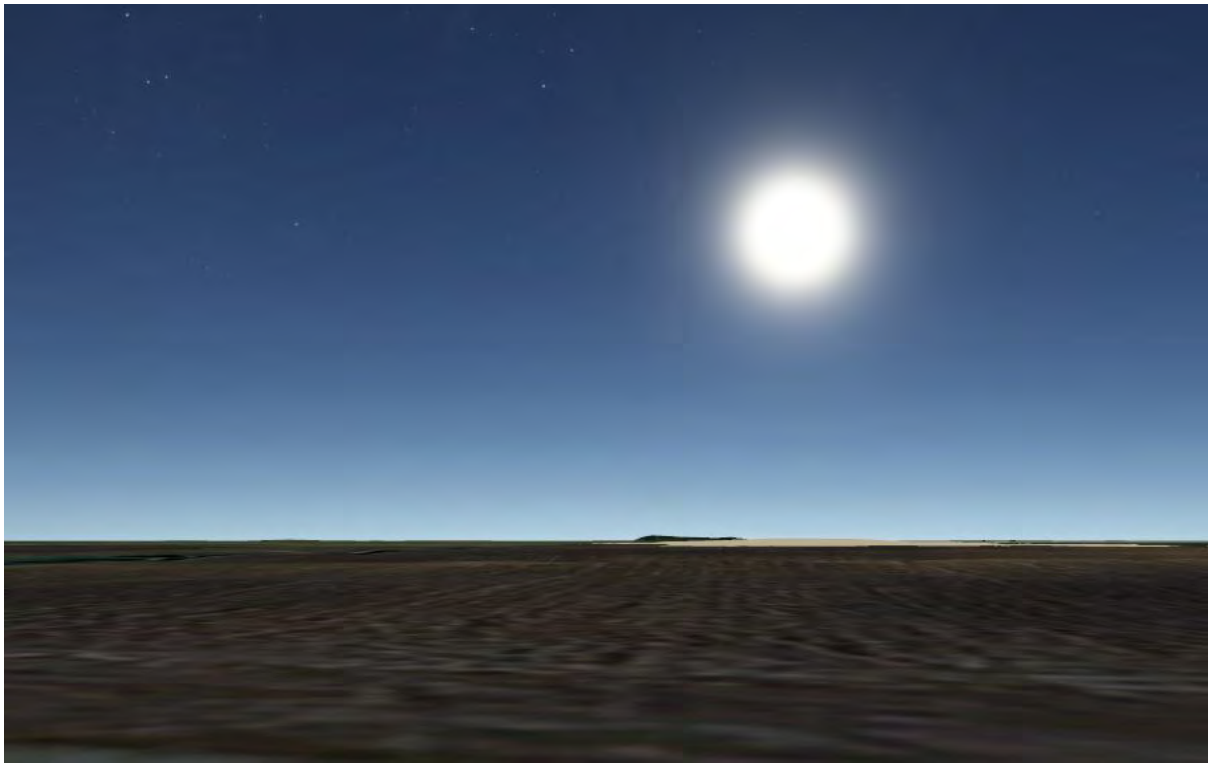
Receptor 30

April 1st 06:00 UTC

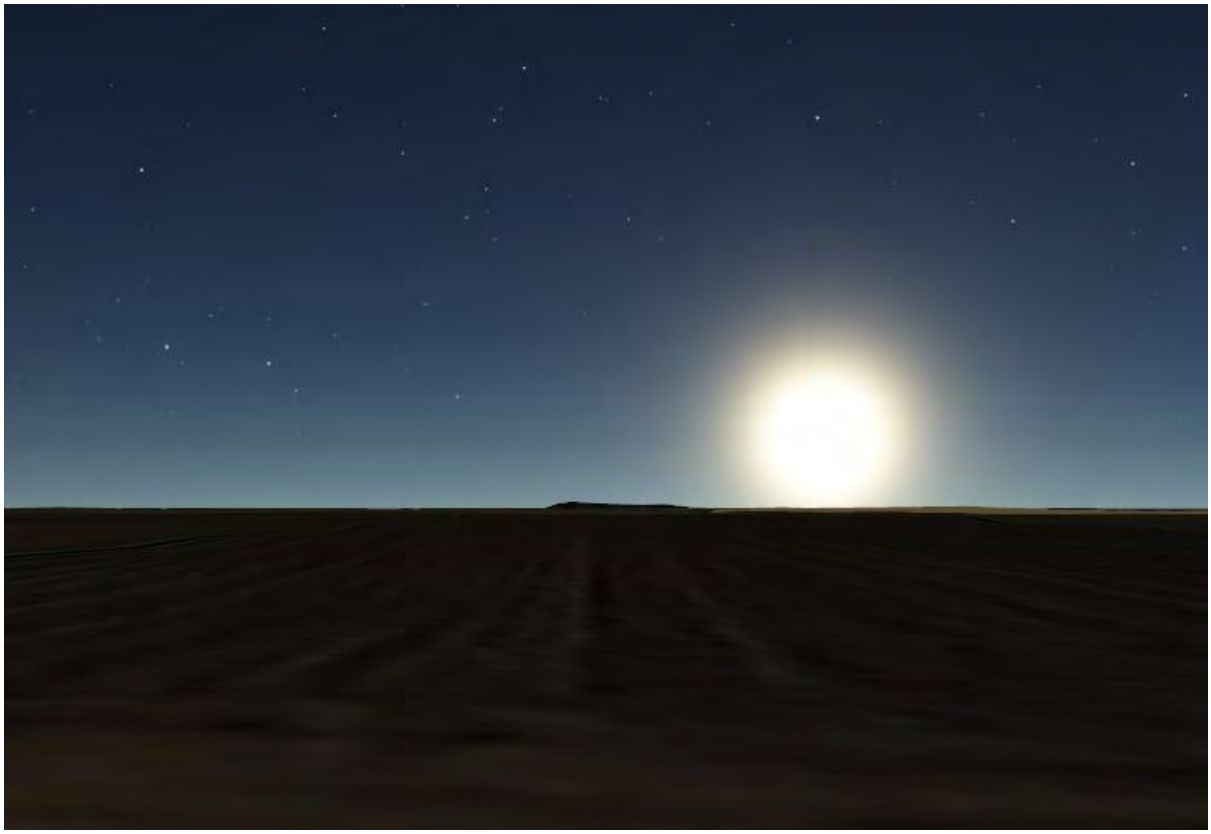


May 15th 06:00 UTC

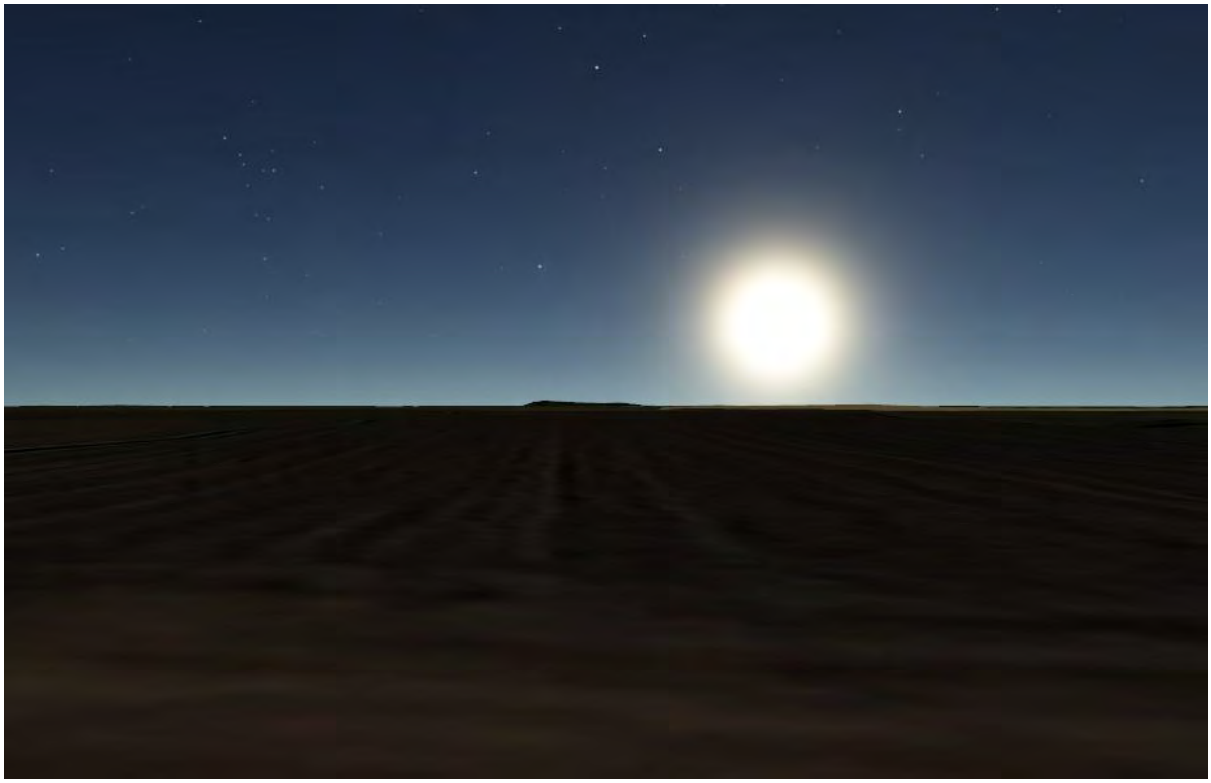


Receptor 31

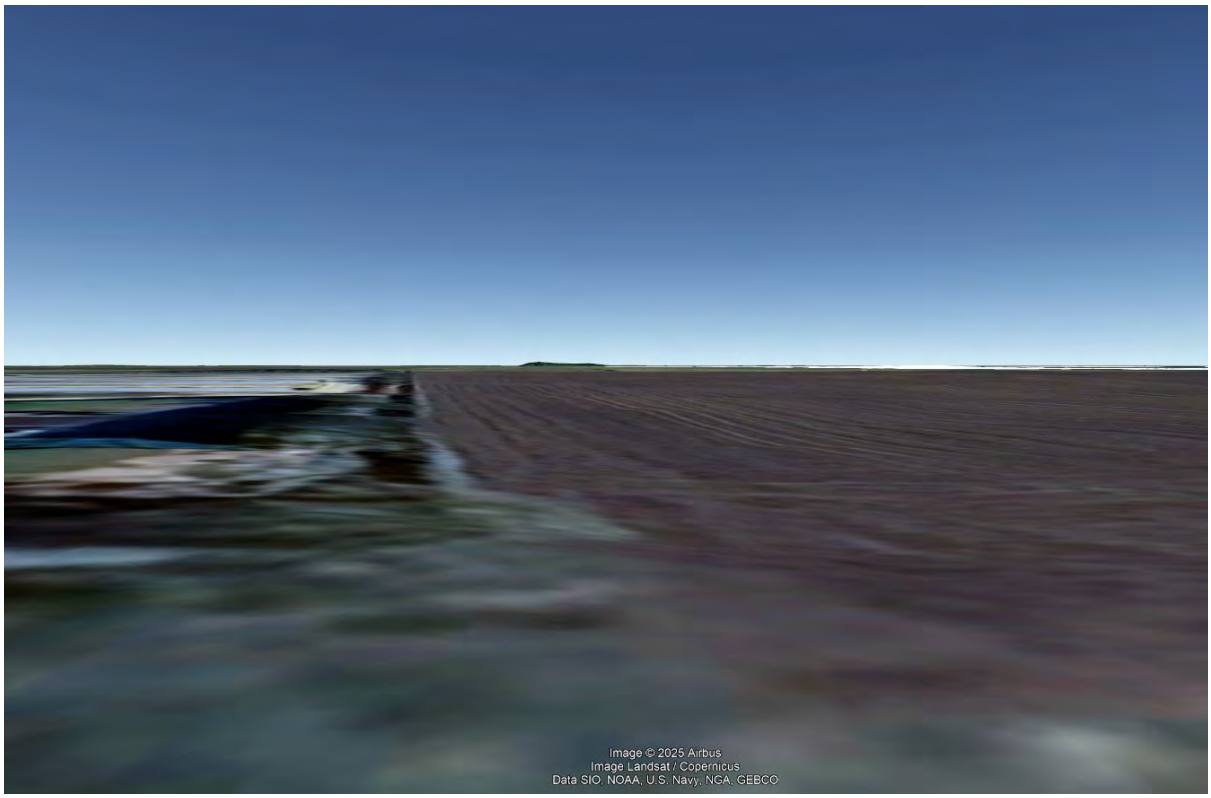
April 1st 06:00 UTC



September 10th 06:00 UTC



Receptor 33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Receptor 36

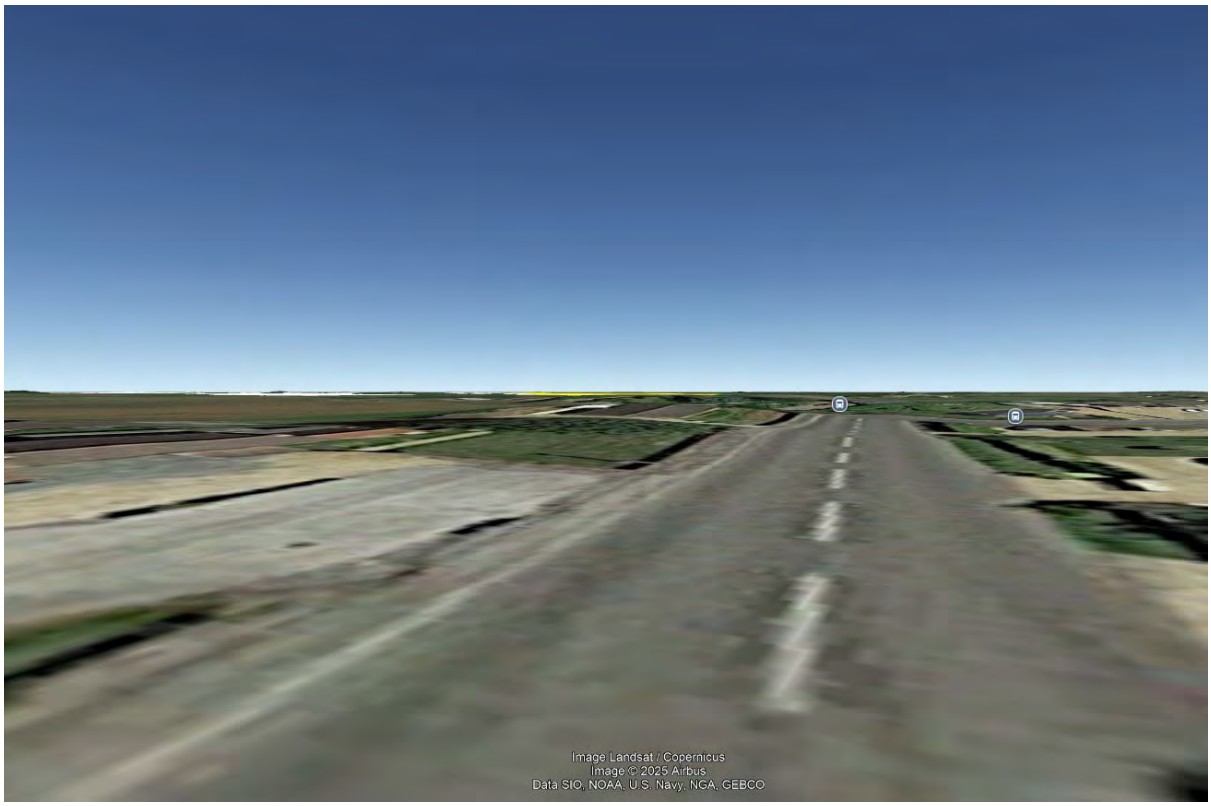
Image Landsat / Copernicus
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Receptor 37

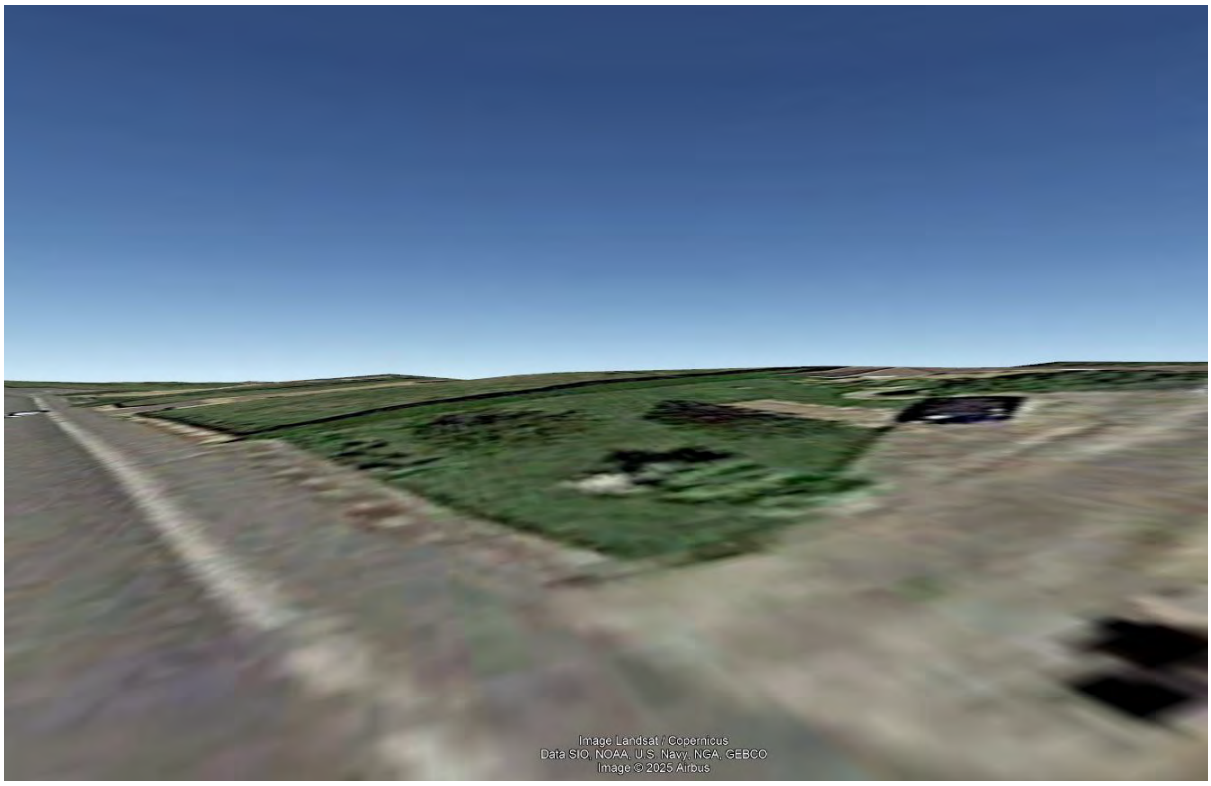
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2025 Airbus

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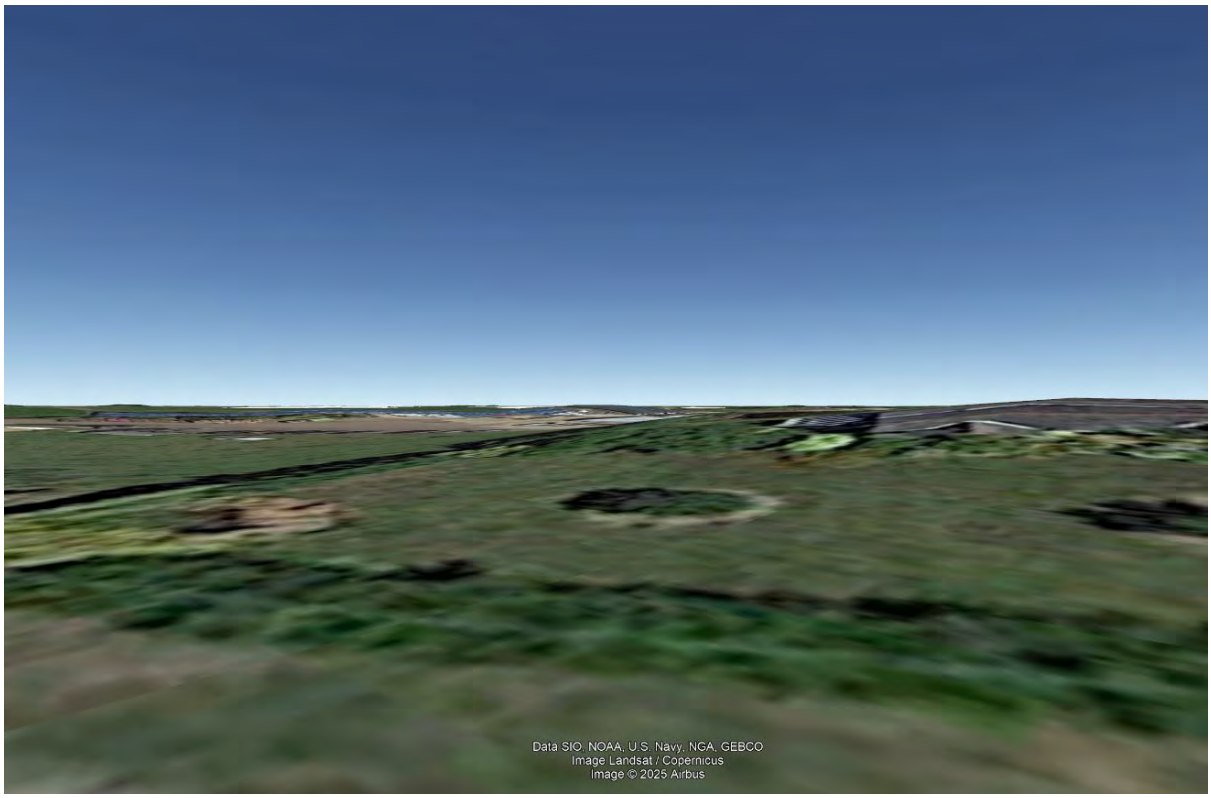
Receptor 38


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2025 Airbus

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Receptor 41

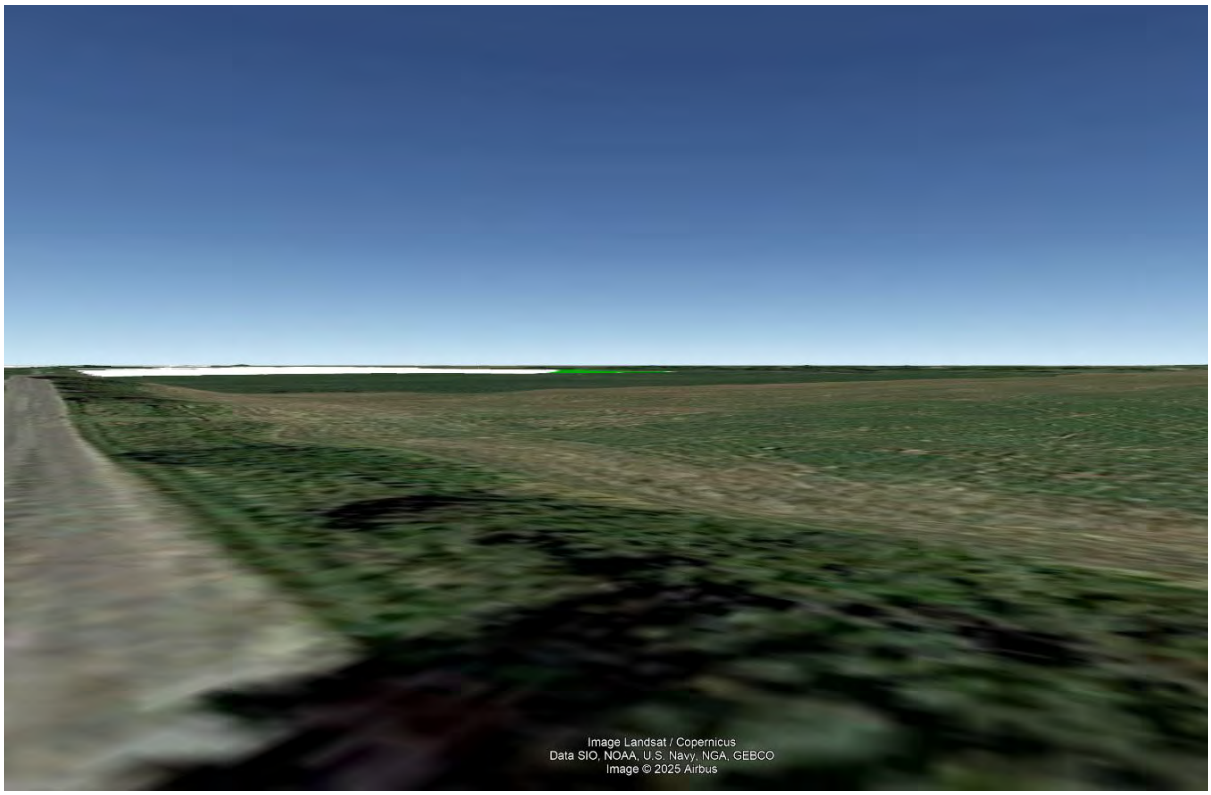
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2025 Airbus

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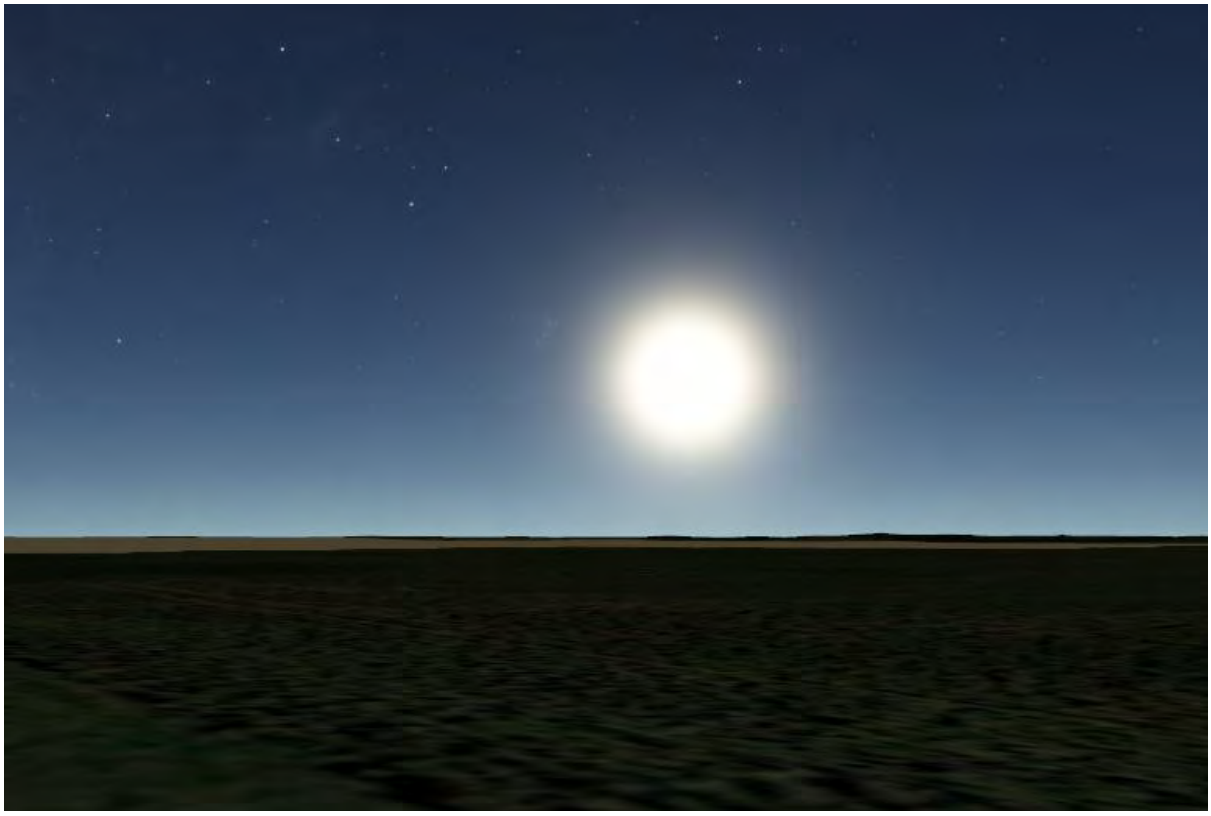
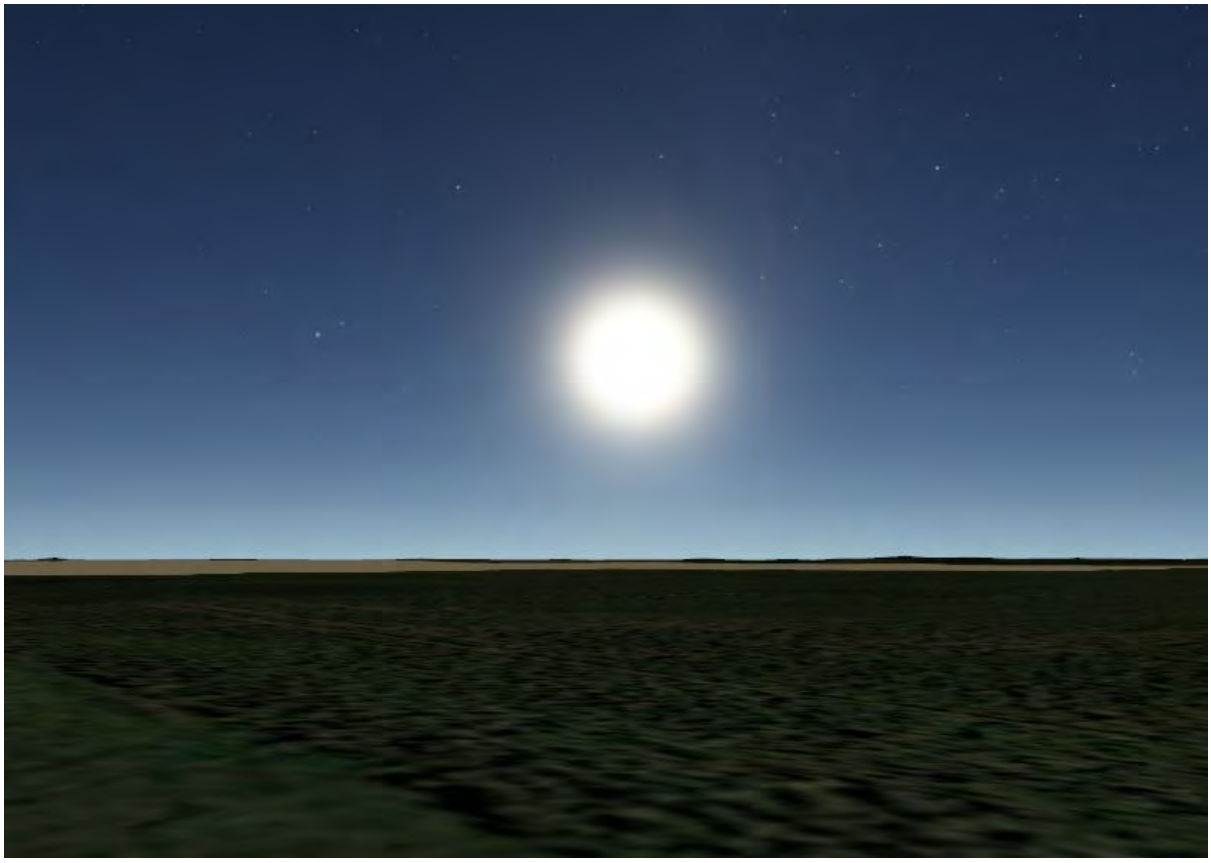
Receptor 42

May 15th 05:00 UTC

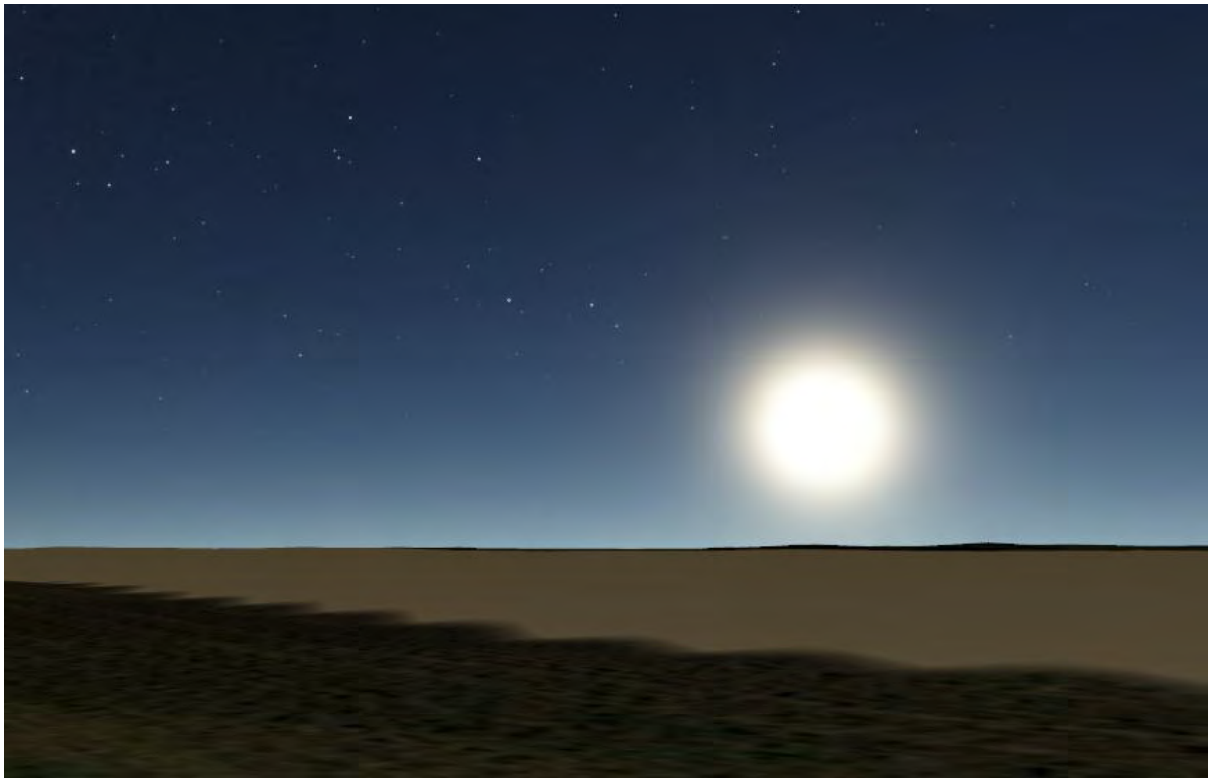


July 1st 05:00 UTC

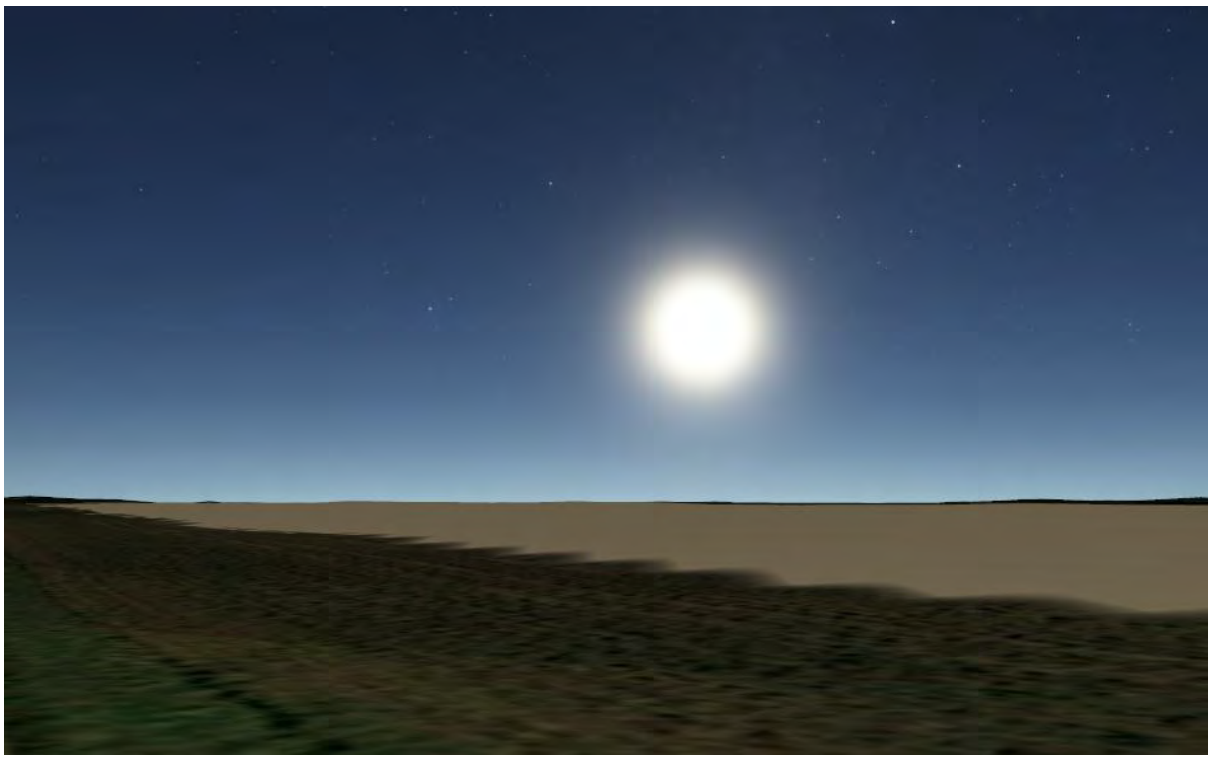


Receptor 43

April 15th 05:45 UTC

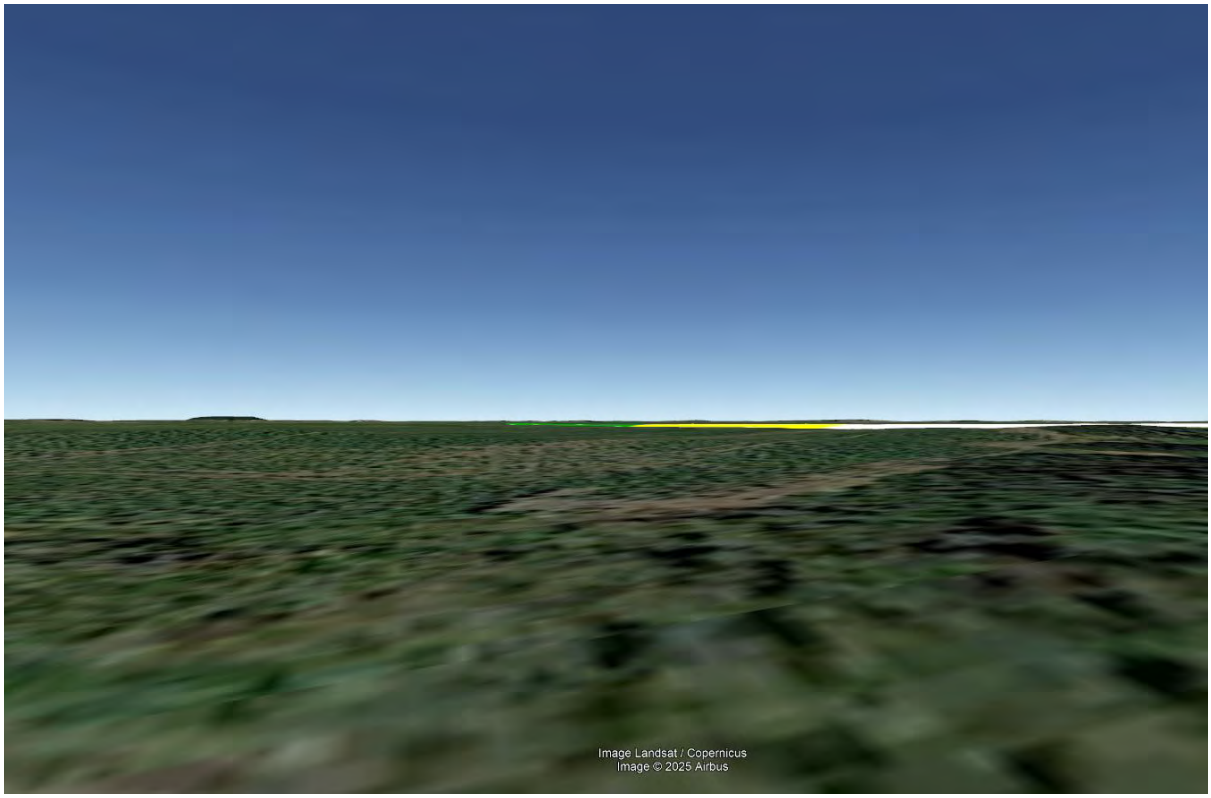


July 1st 05:00 UTC



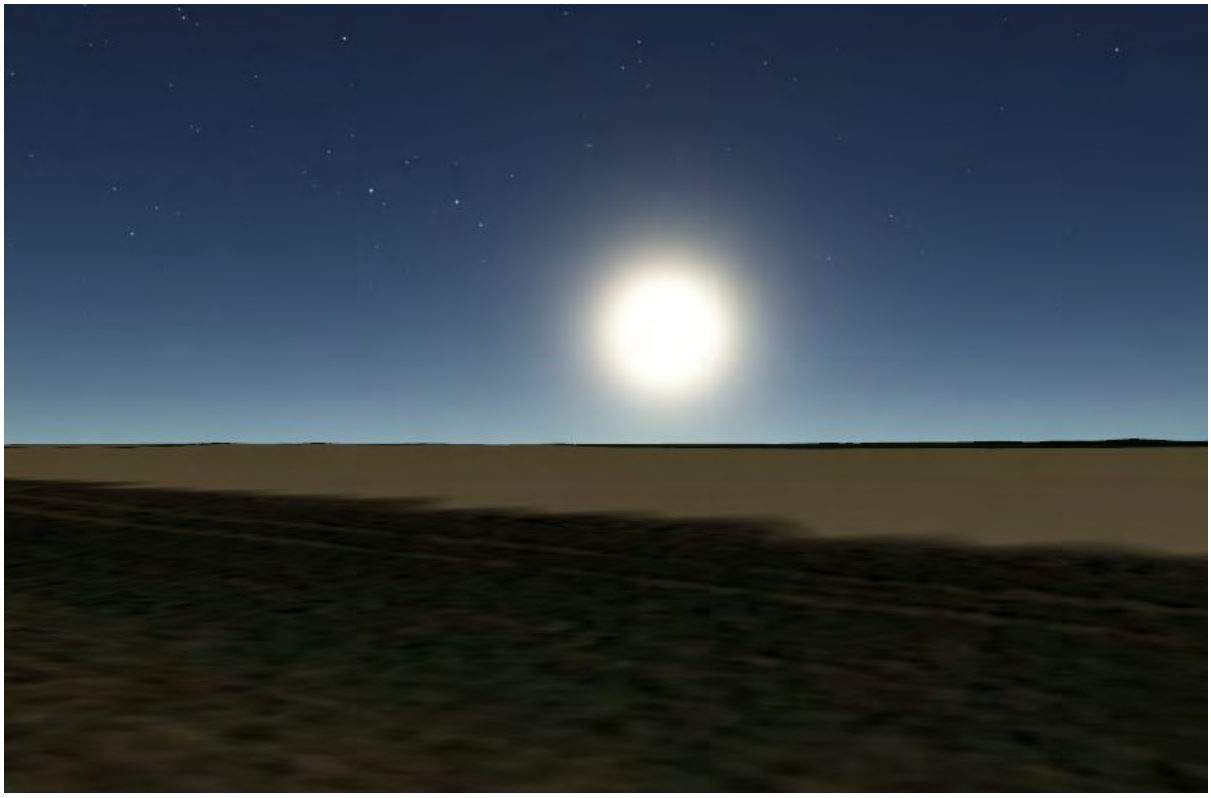
Receptor 44

Looking West

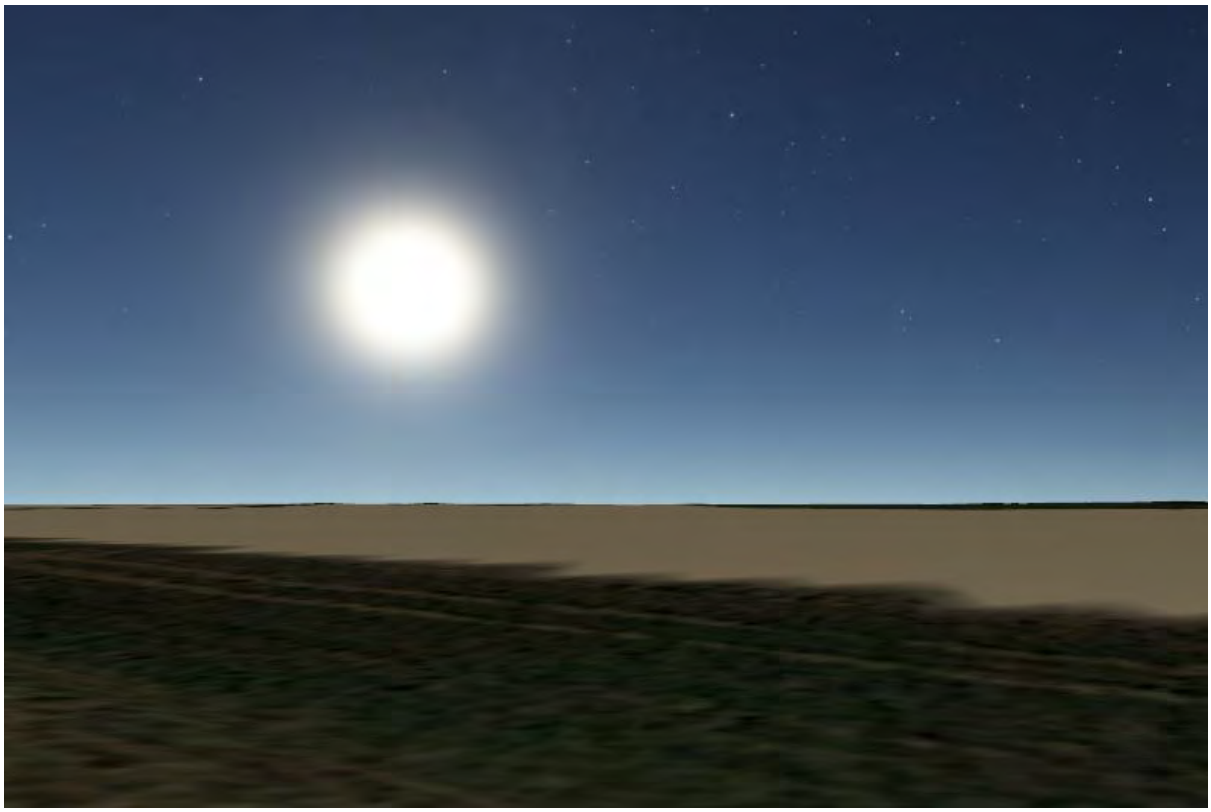


Looking East

April 15th 05:45 UTC

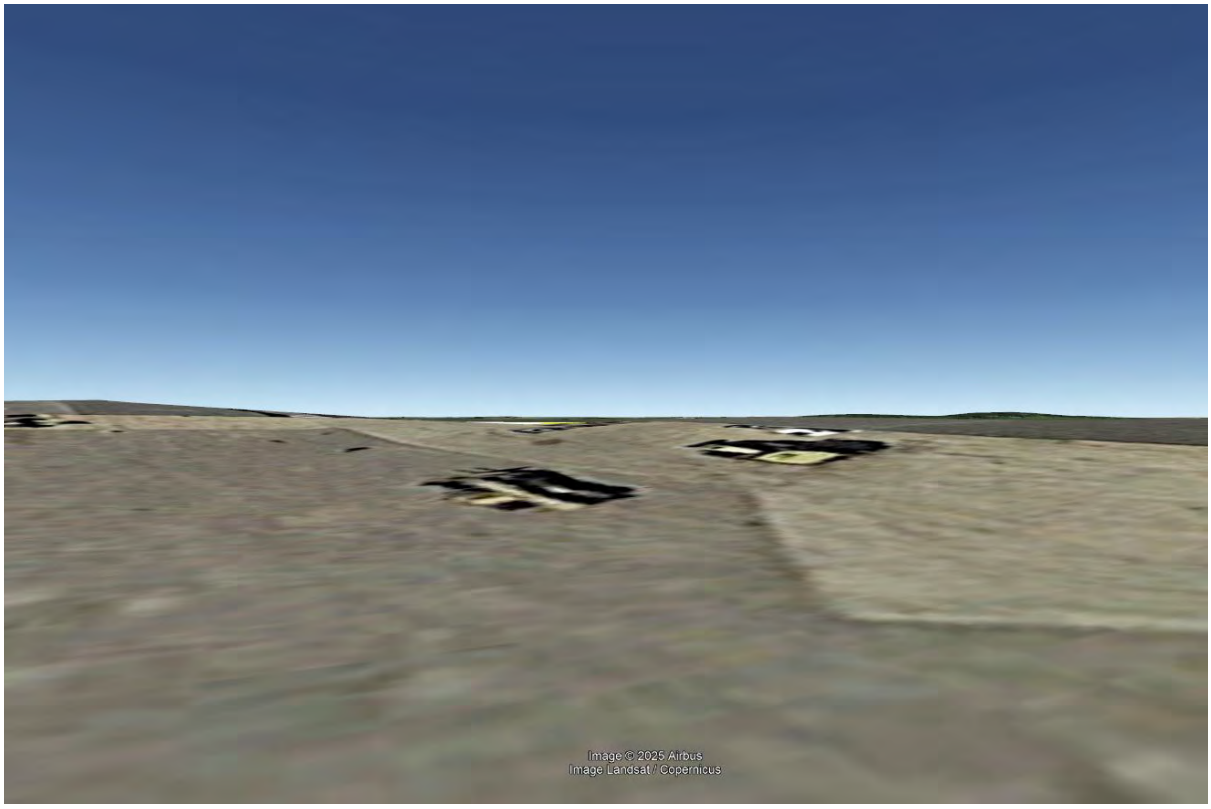


July 1st 05:00 UTC



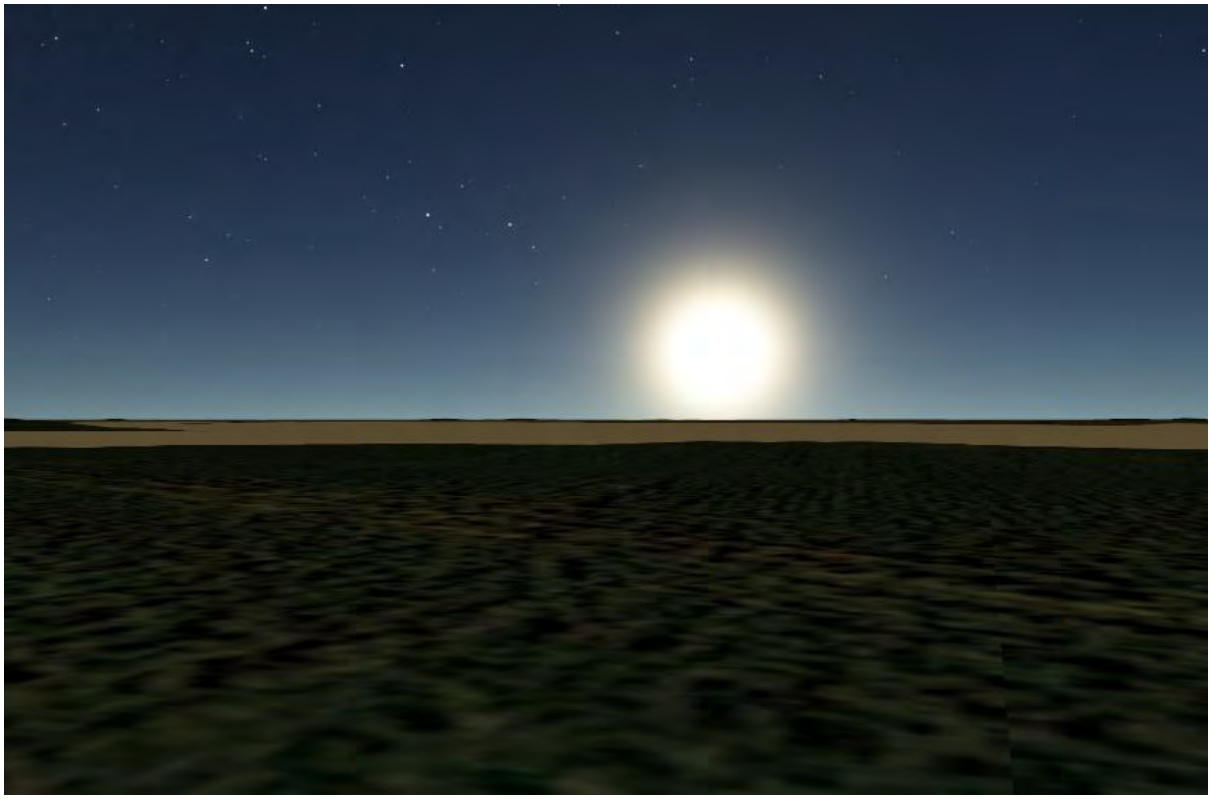
Receptor 45

Looking West

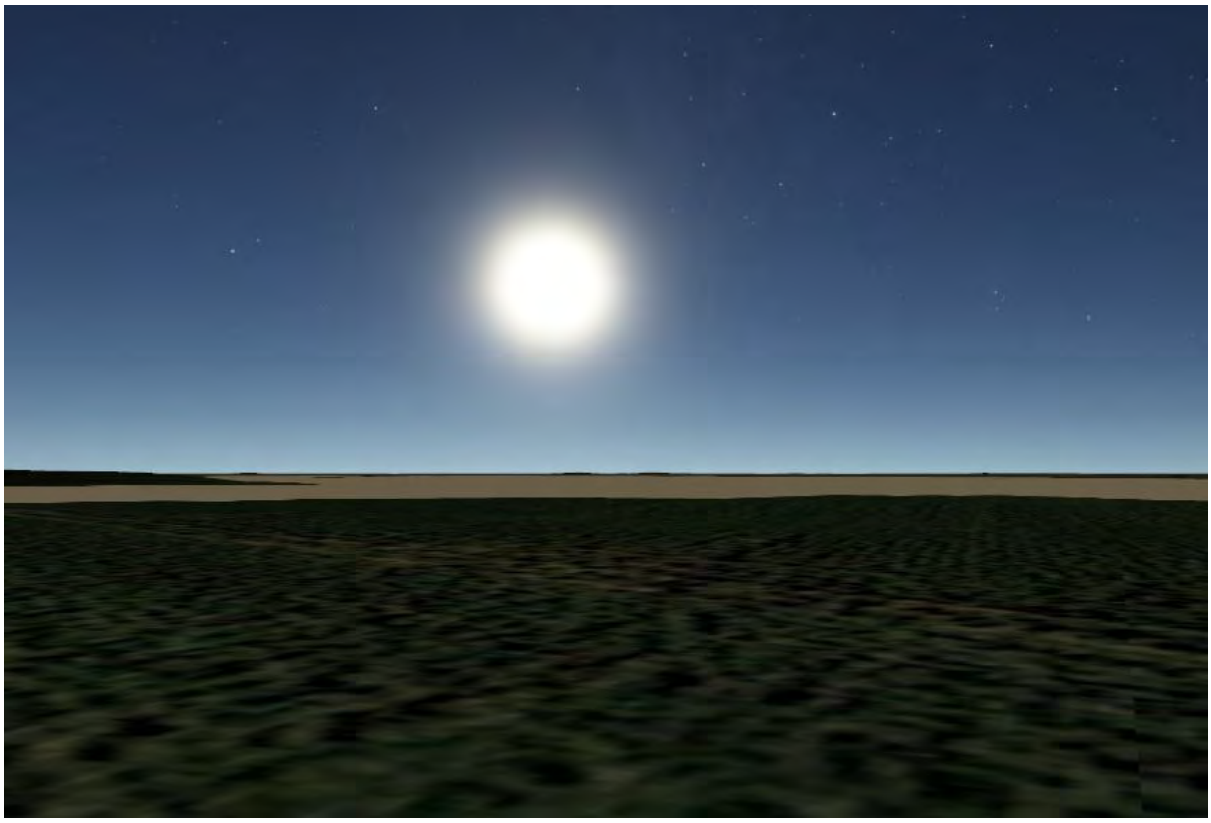


Looking East

April 15th 05:30 UTC



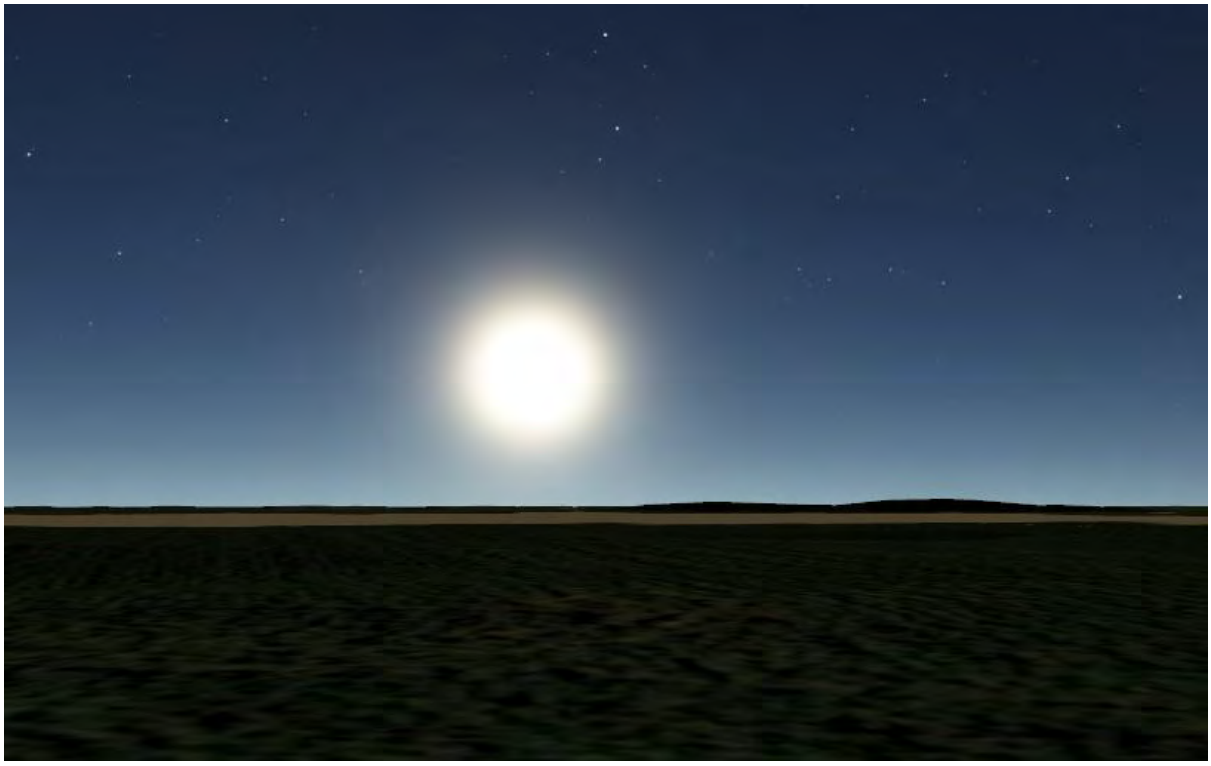
July 1st 05:00 UTC



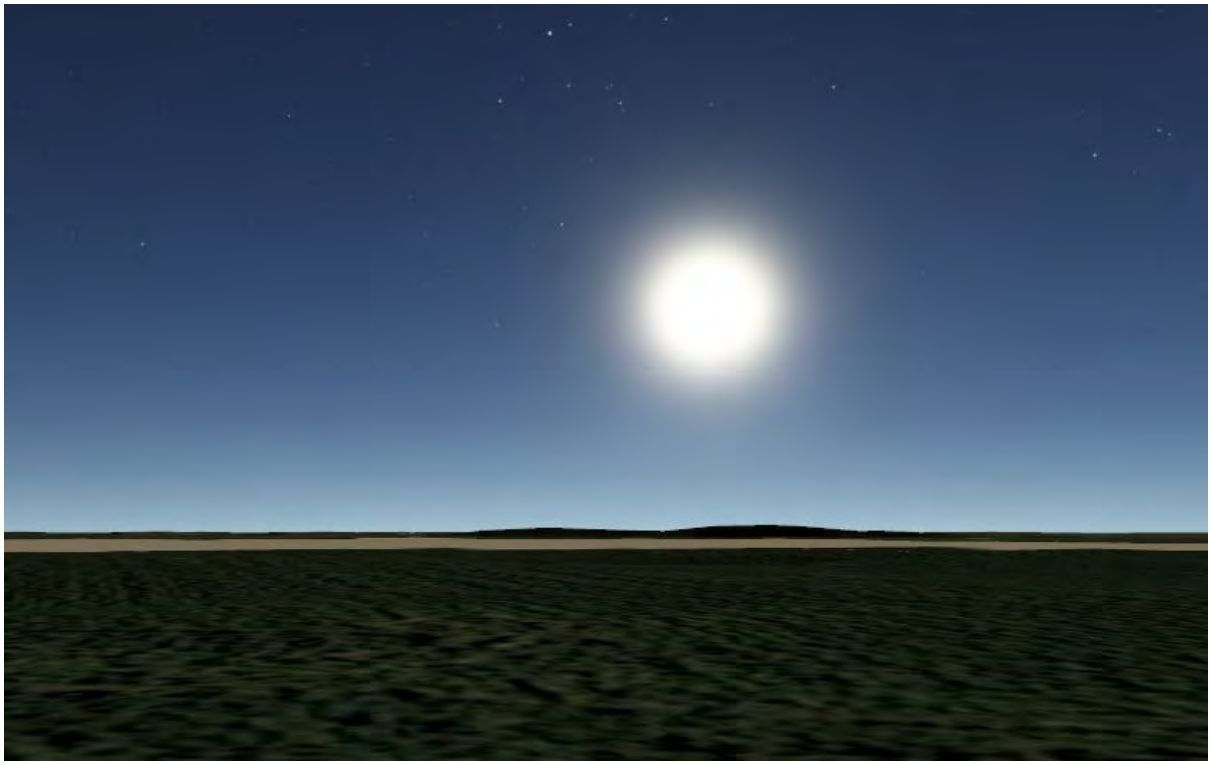
Receptor 46

Looking West

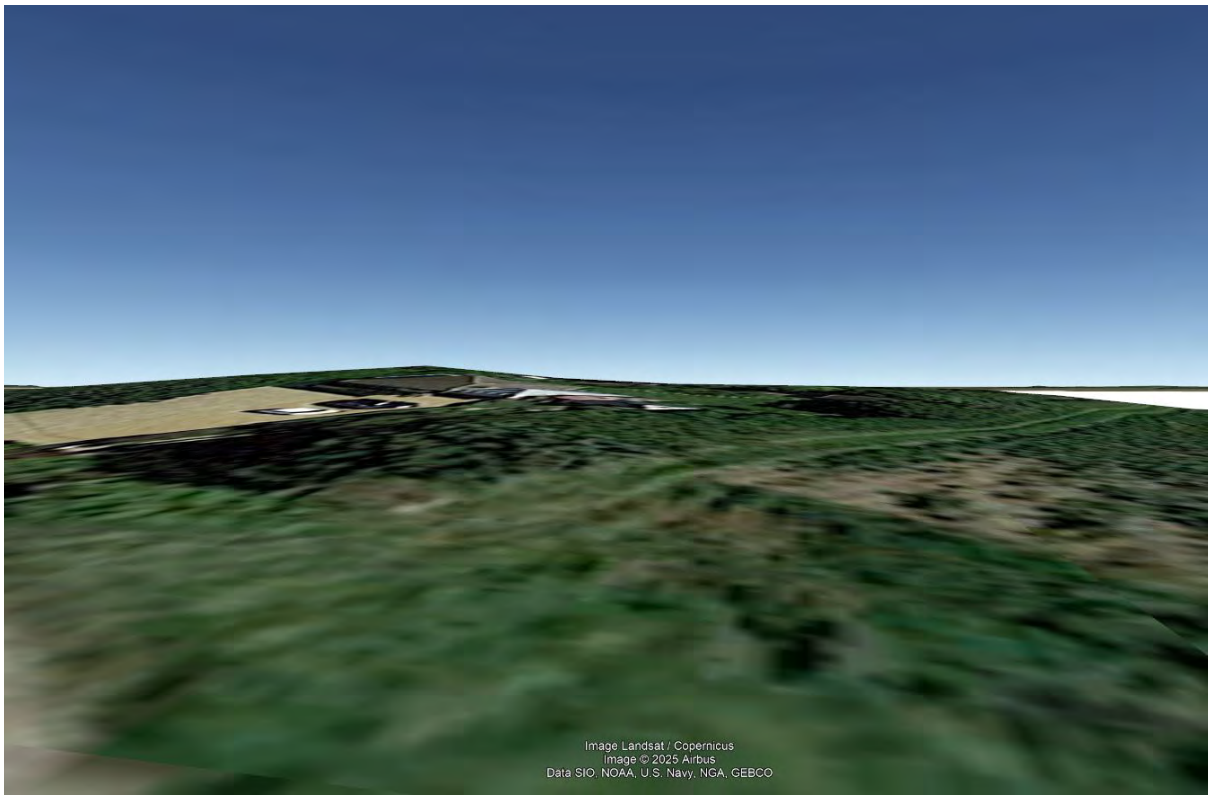
April 15th 18:15 UTC



July 1st 19:00 UTC



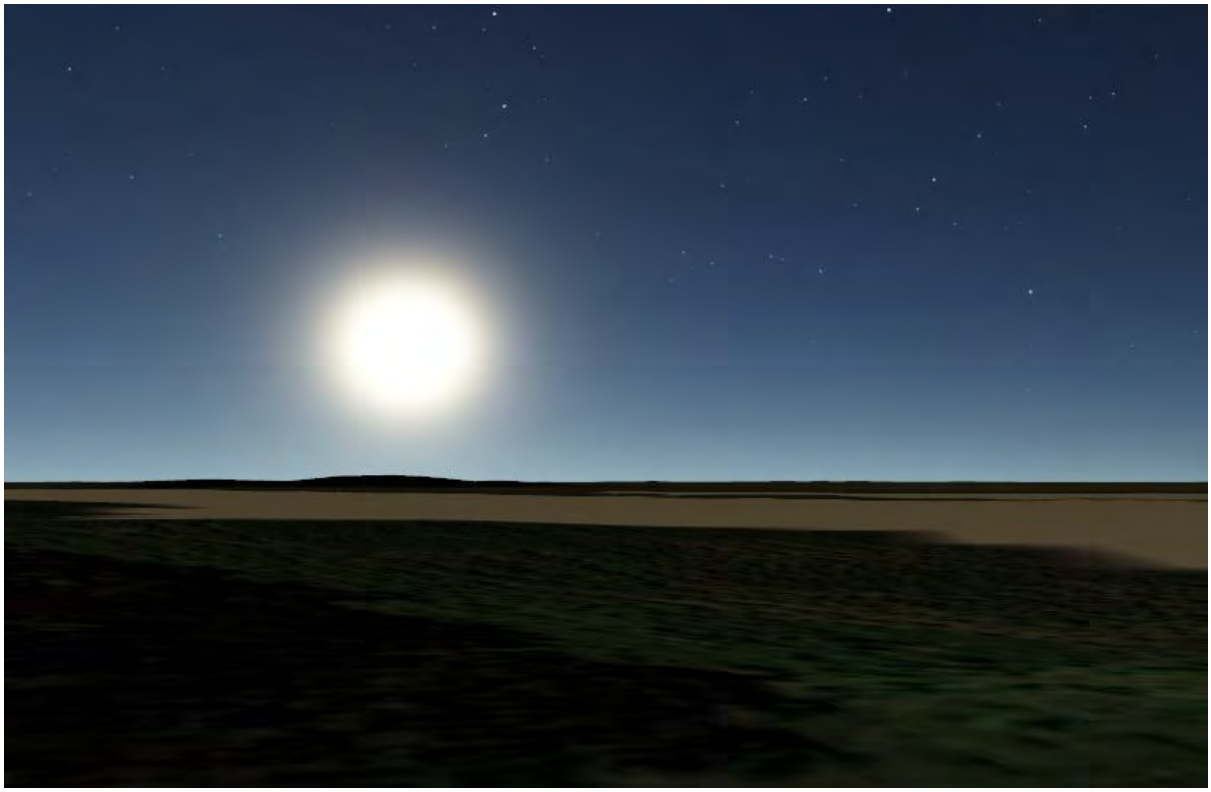
Looking East



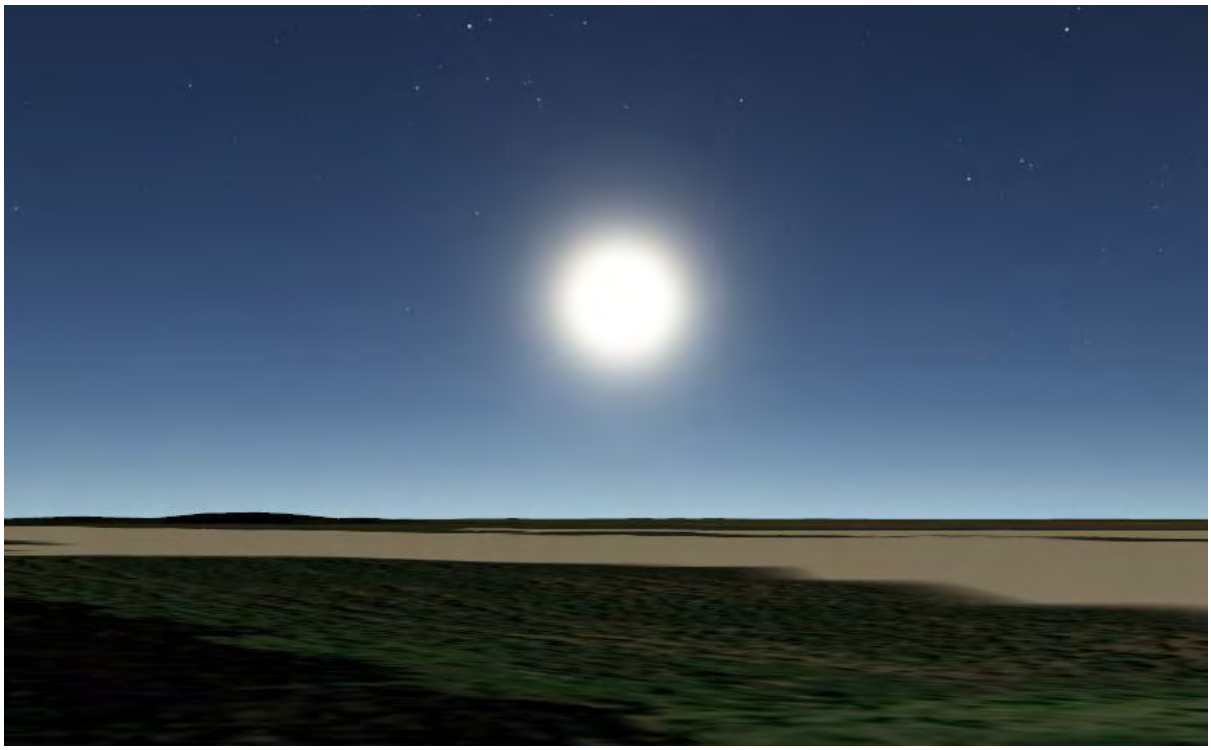
Receptor 47

Looking West

April 15th 18:15 UTC

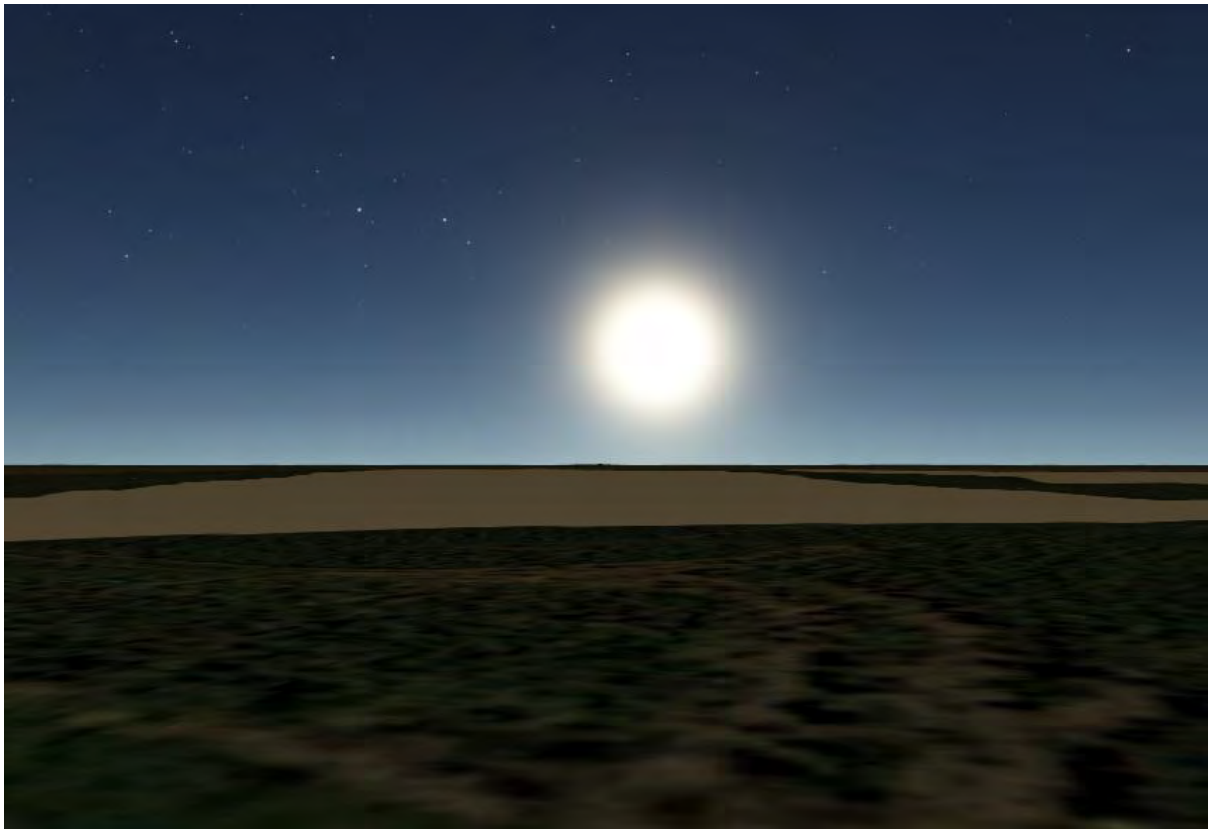


July 1st 19:00 UTc

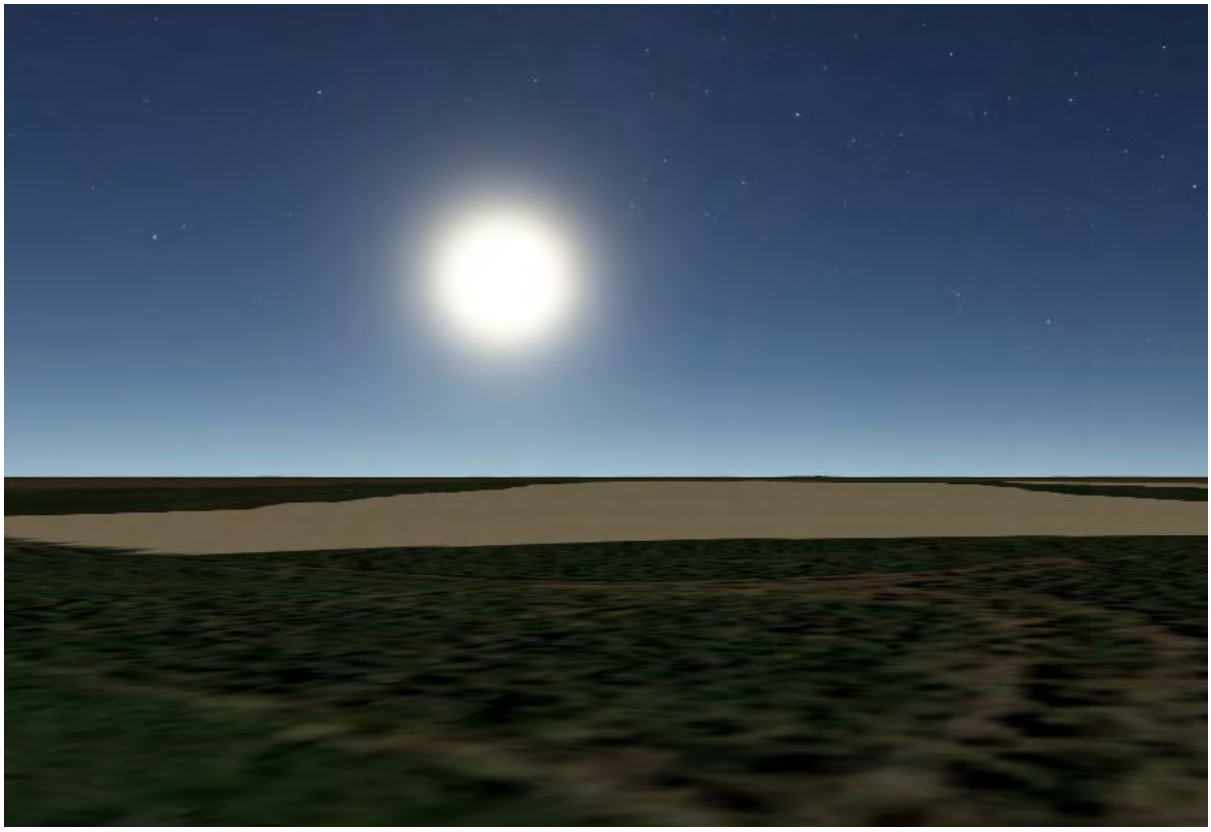


Looking East

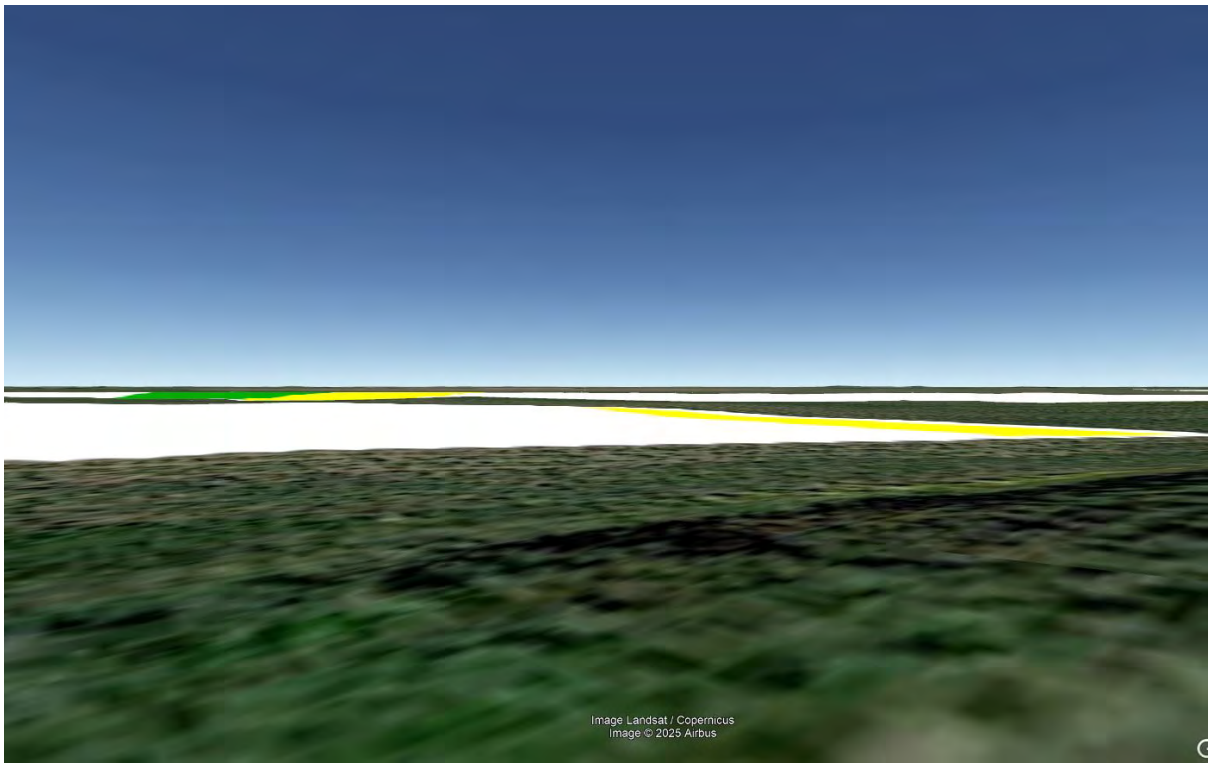
April 15th 05:45 UTC



July 1st 05:00 UTC

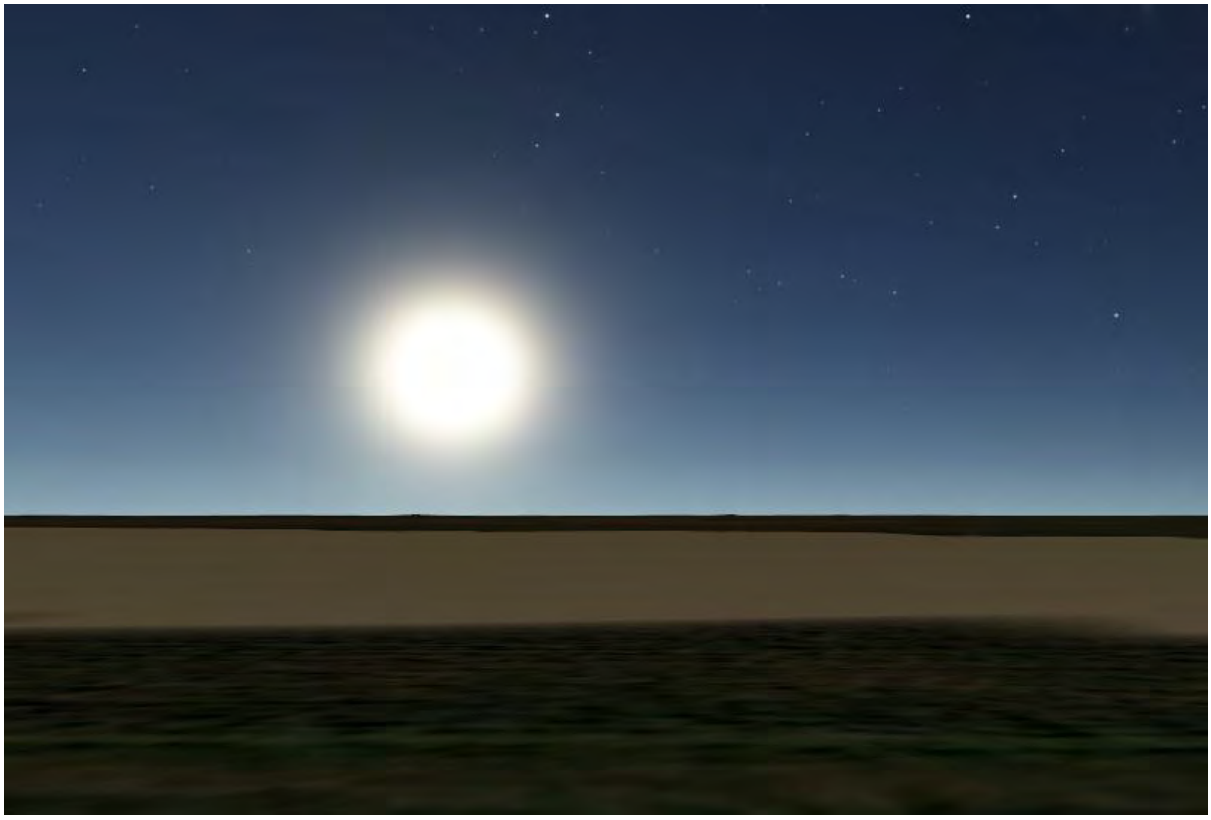


Receptor 48

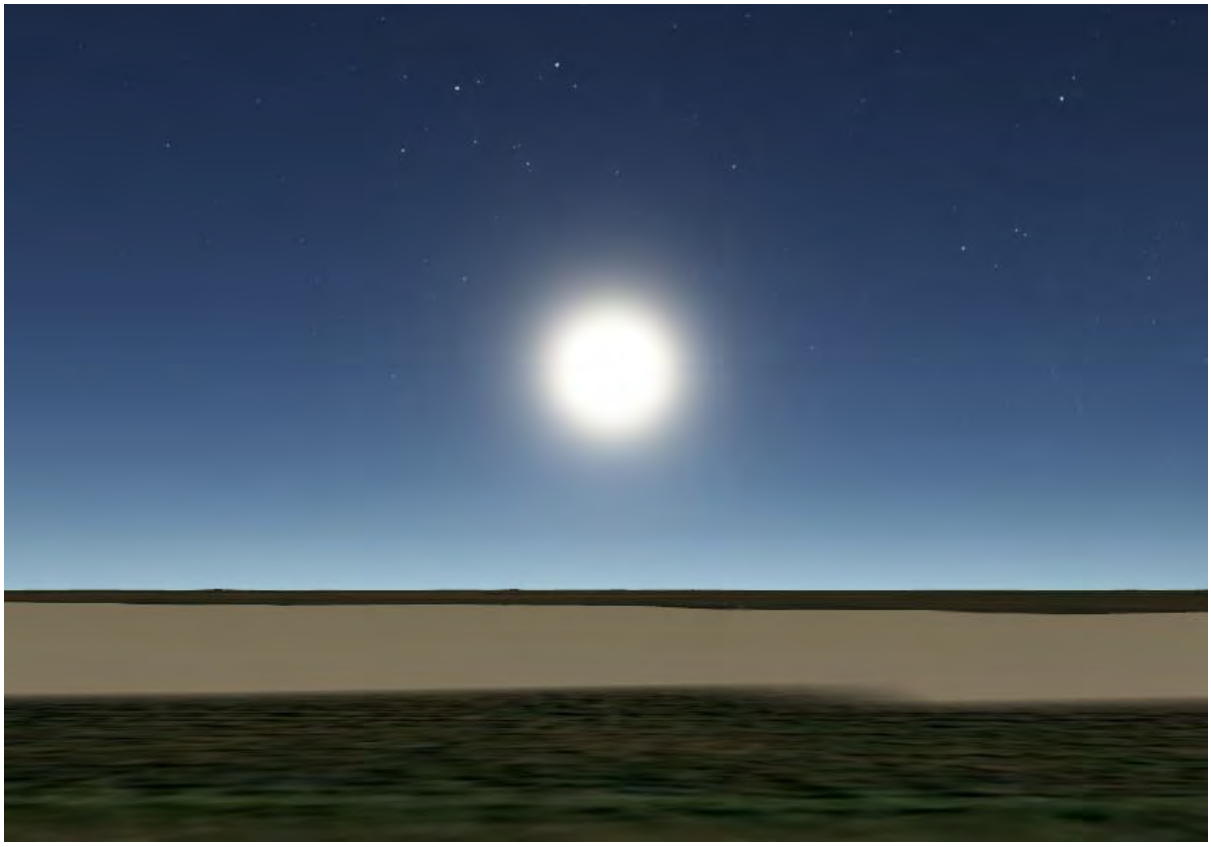


Receptor 49

April 15th 18:15 UTC



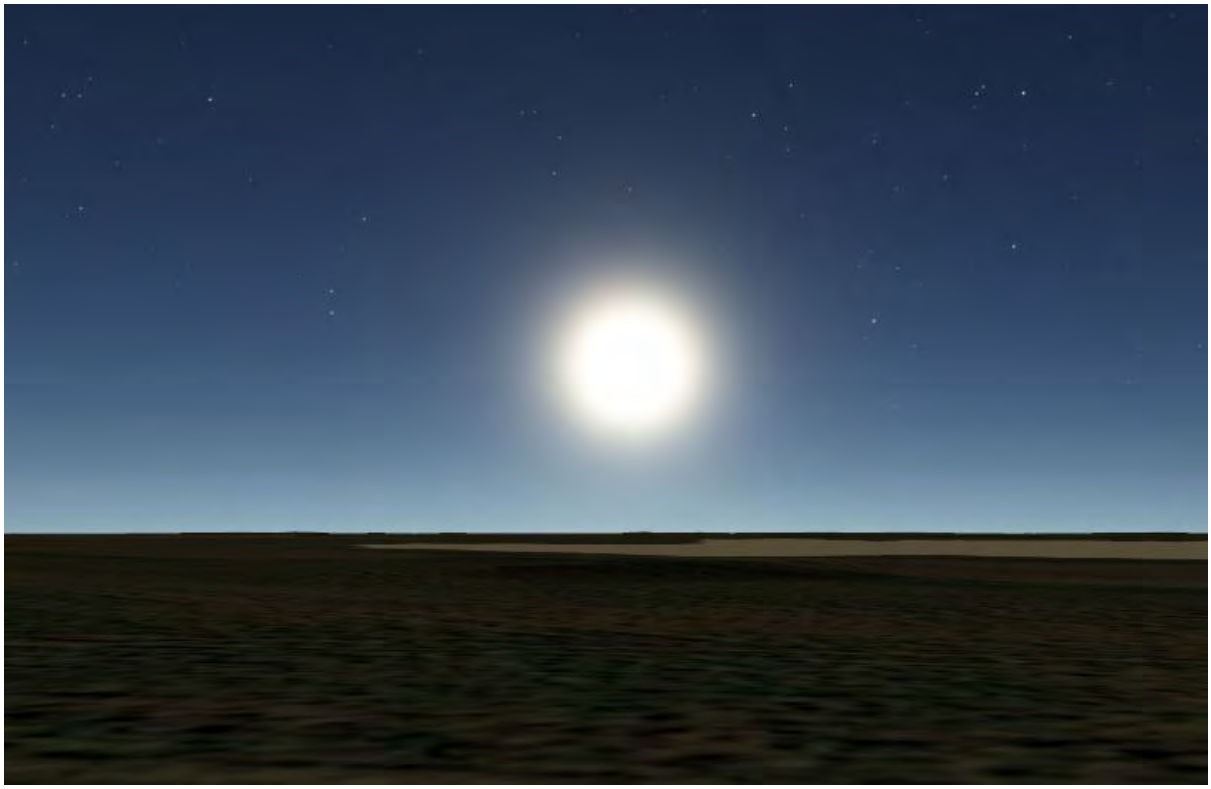
July 1st 19:00 UTC



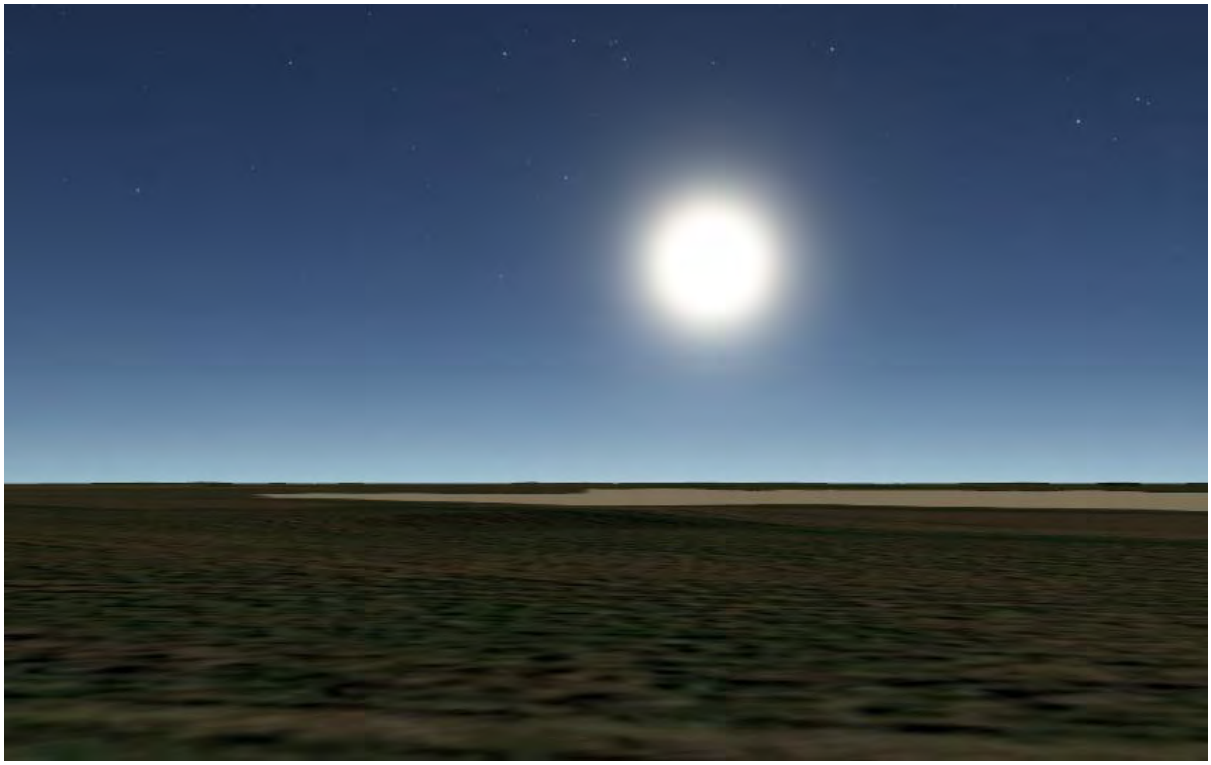
Receptor 50

Looking West

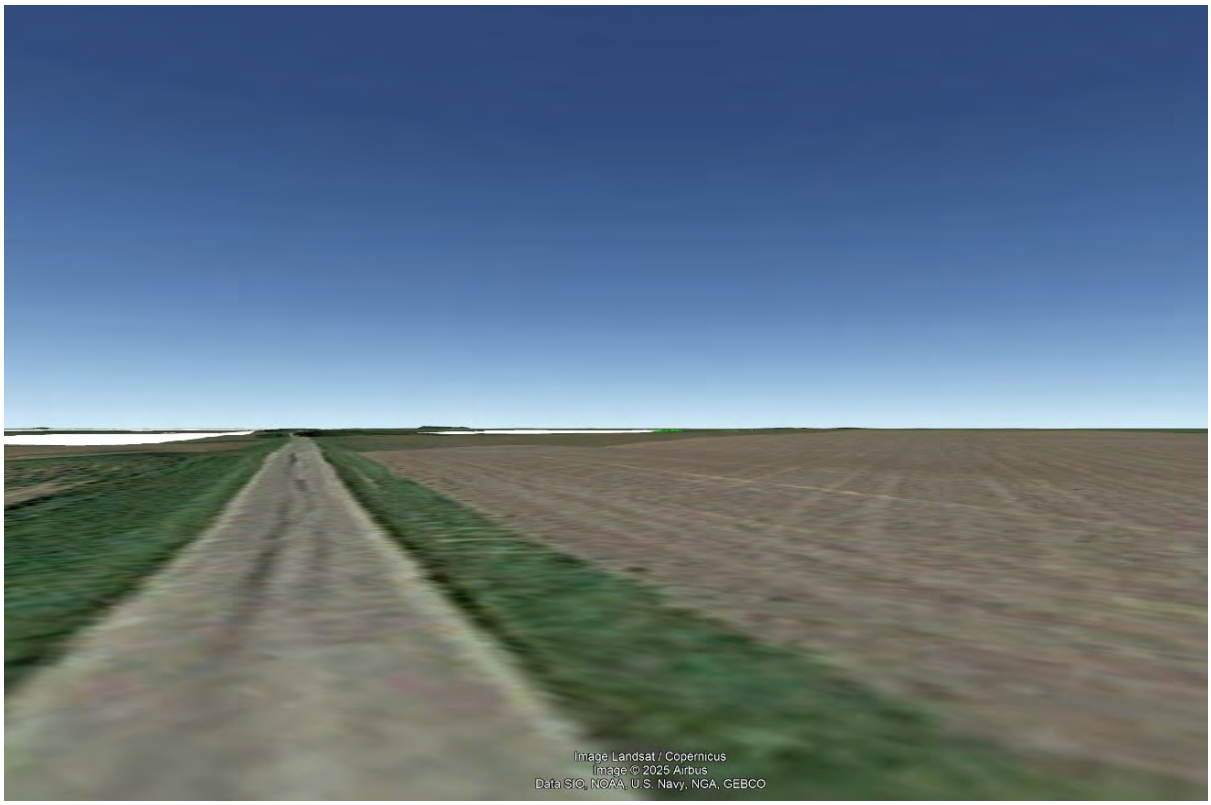
May 1st 18:30



July 1st 19:00



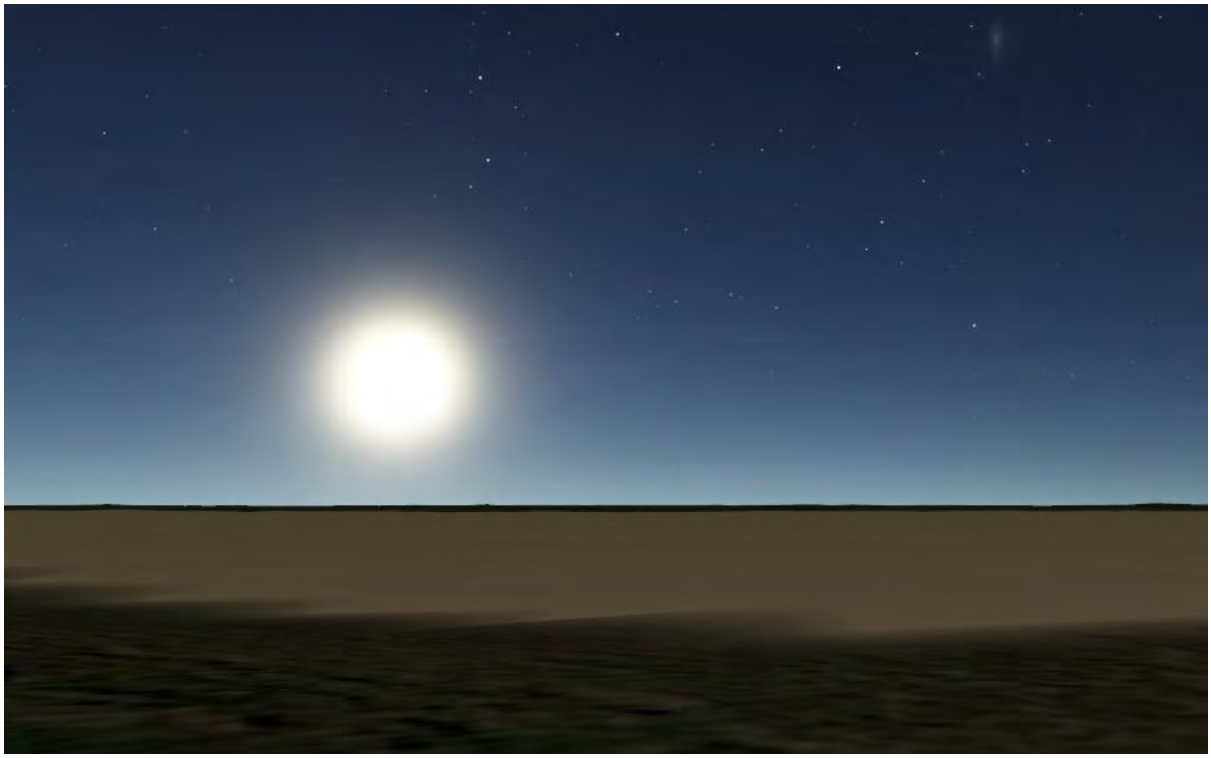
Looking East



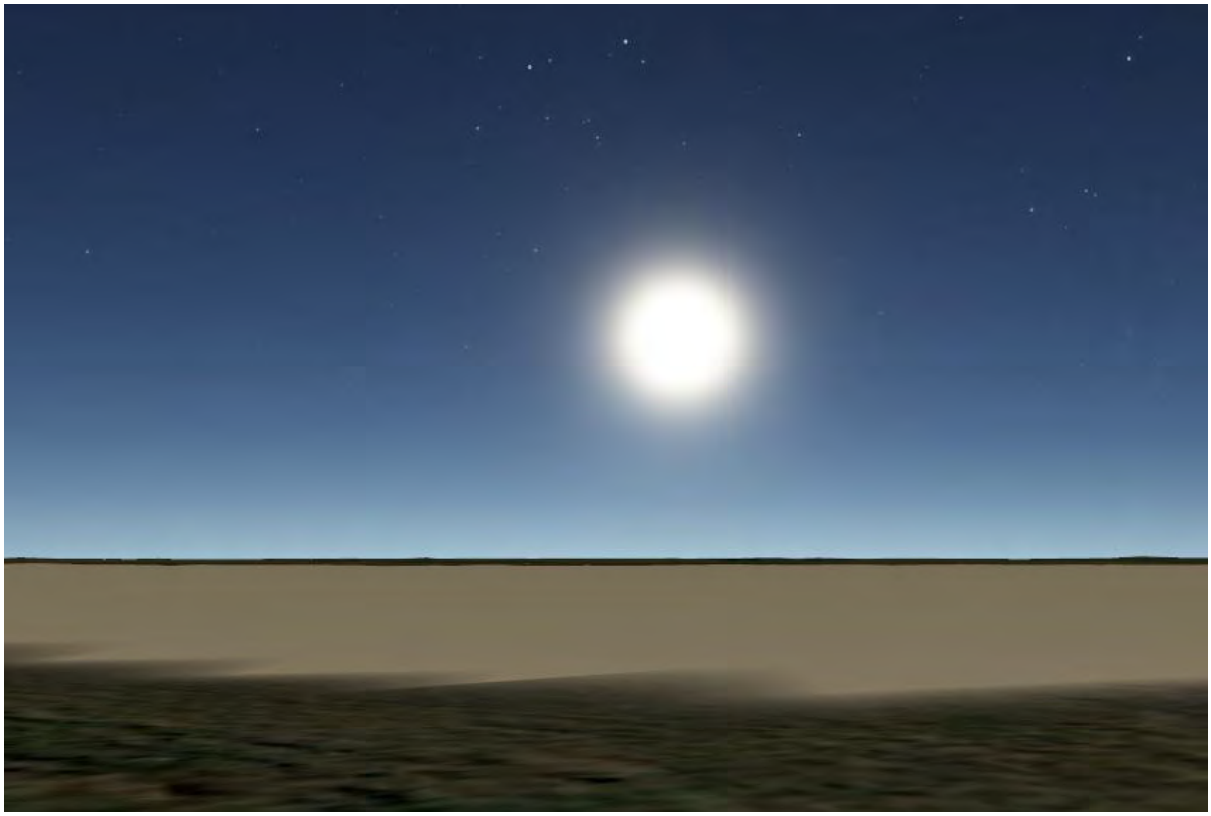
Receptor 51

Looking West

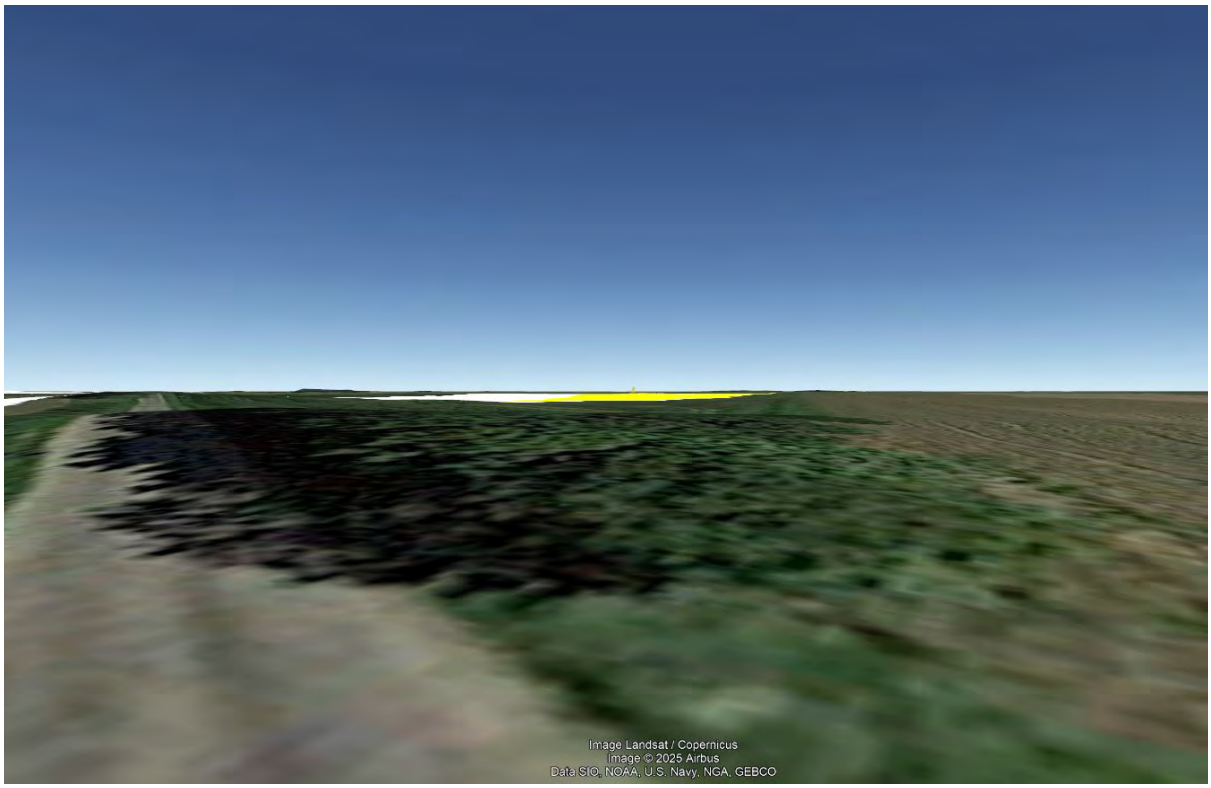
April 15th 18:15 UTC



July 1st 19:00 UTC

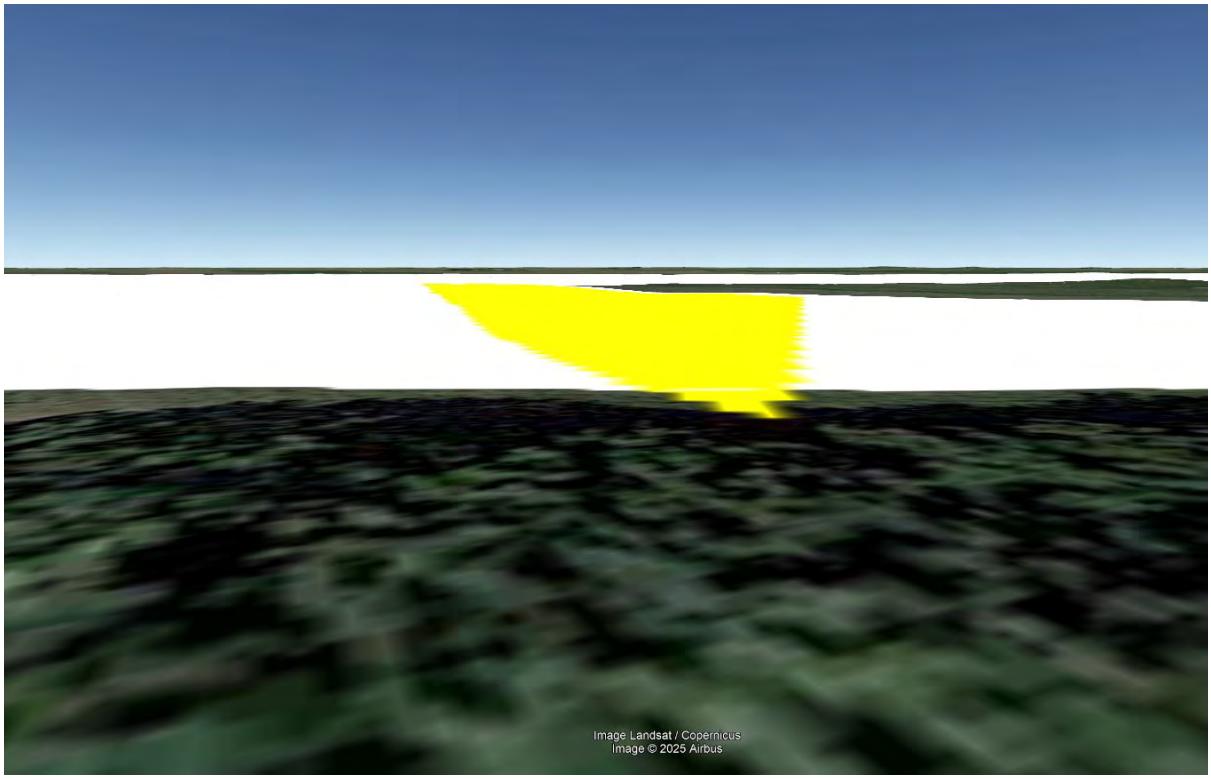


Looking East



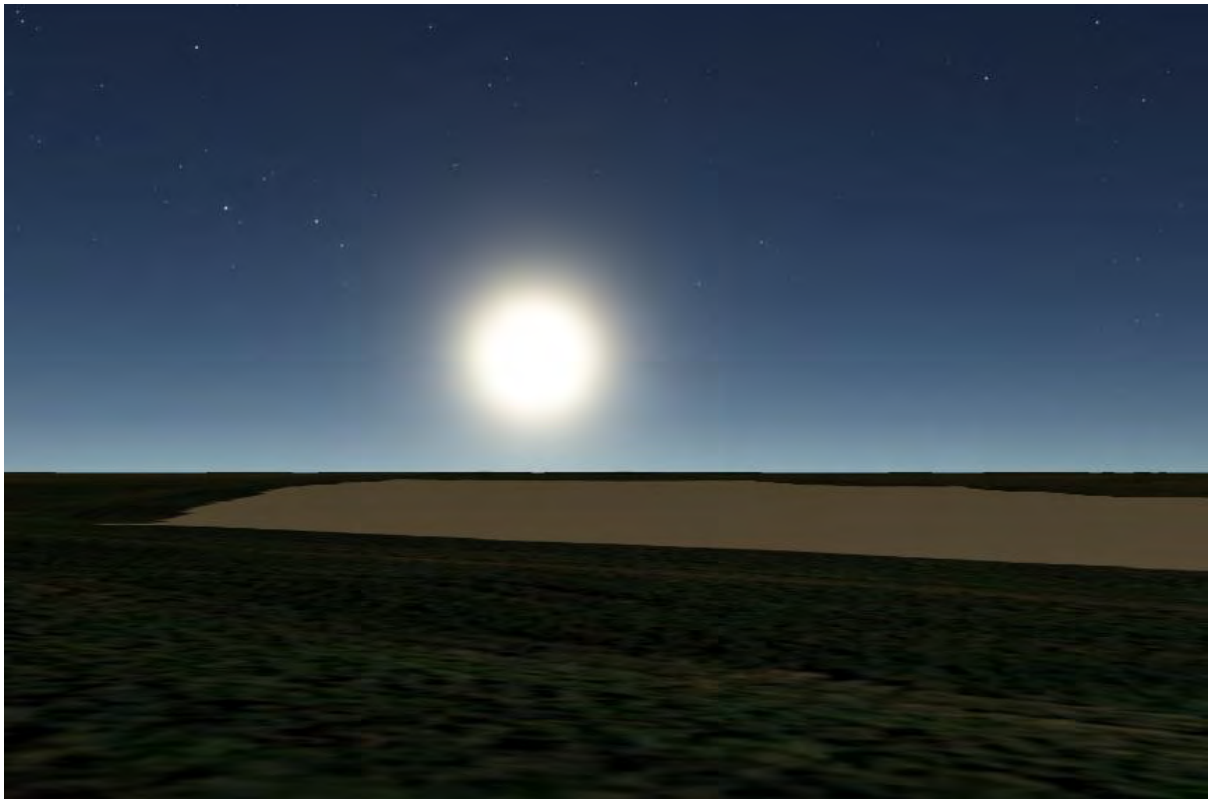
Receptor 52

Looking West

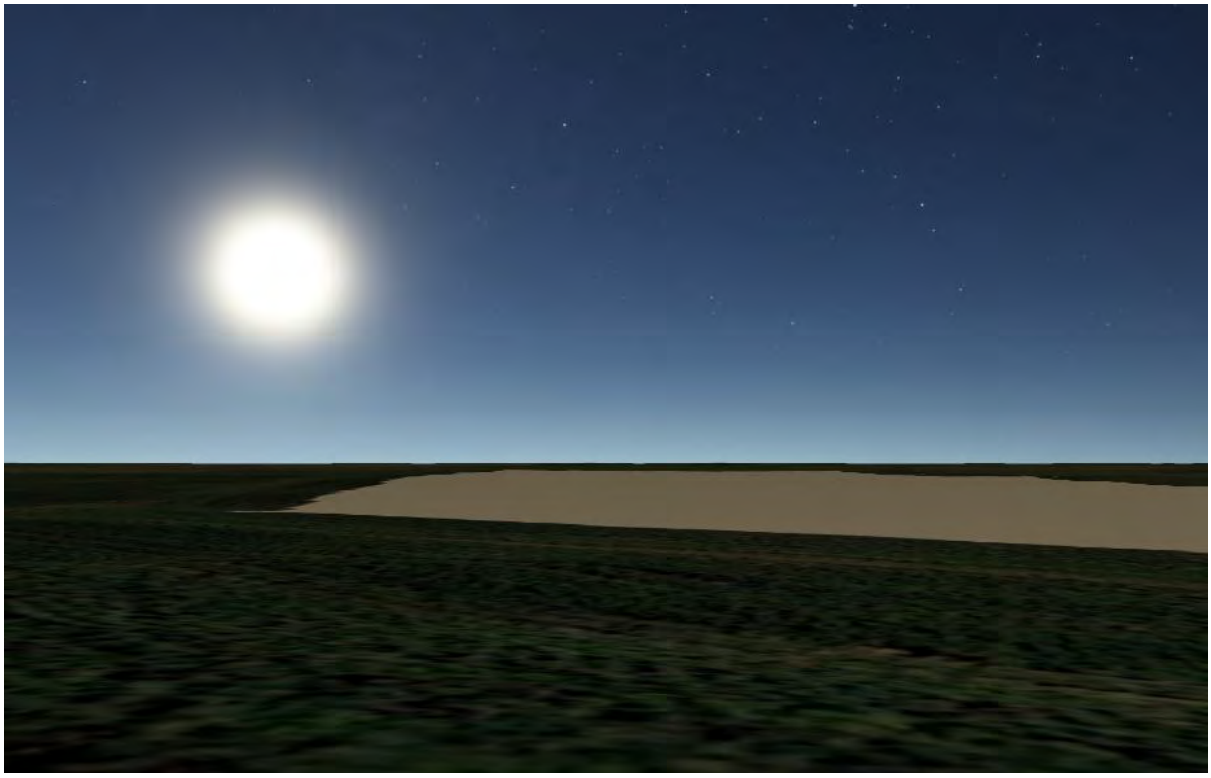


Looking East

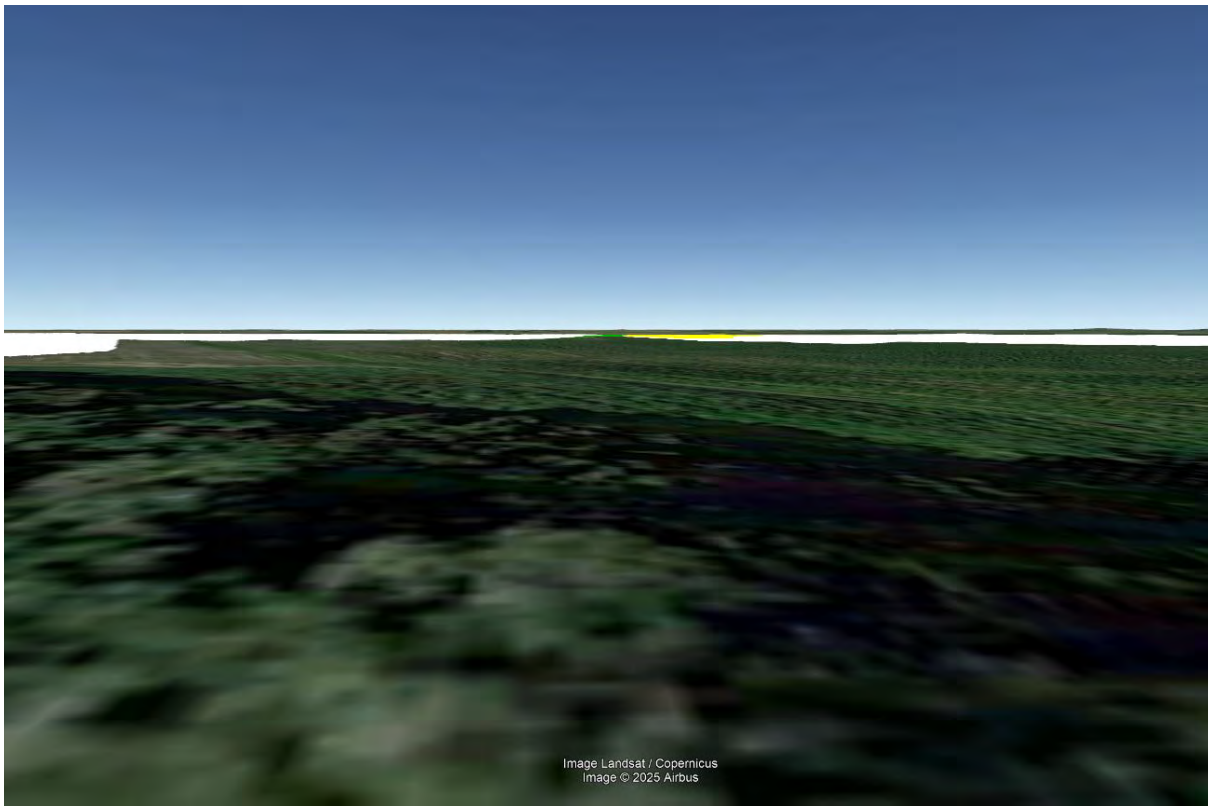
April 15th 05:45 UTC

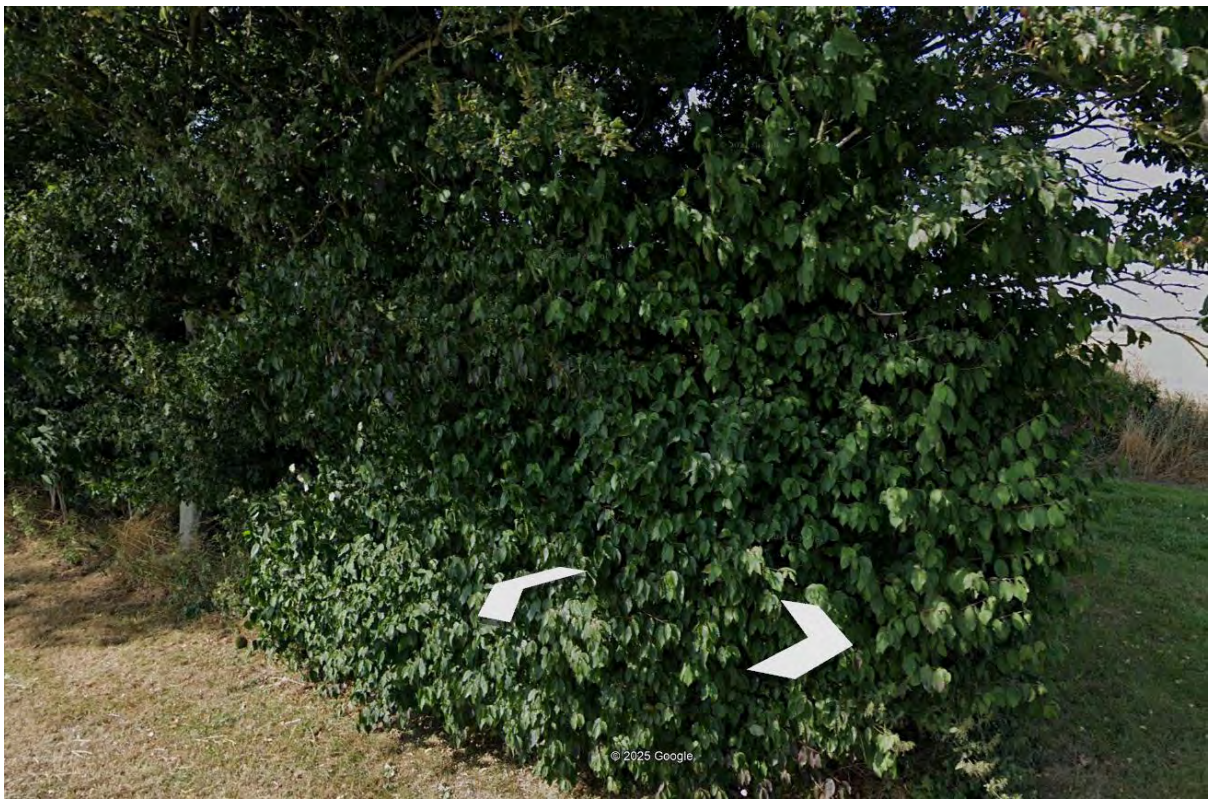


July 1st 045:00 UTC

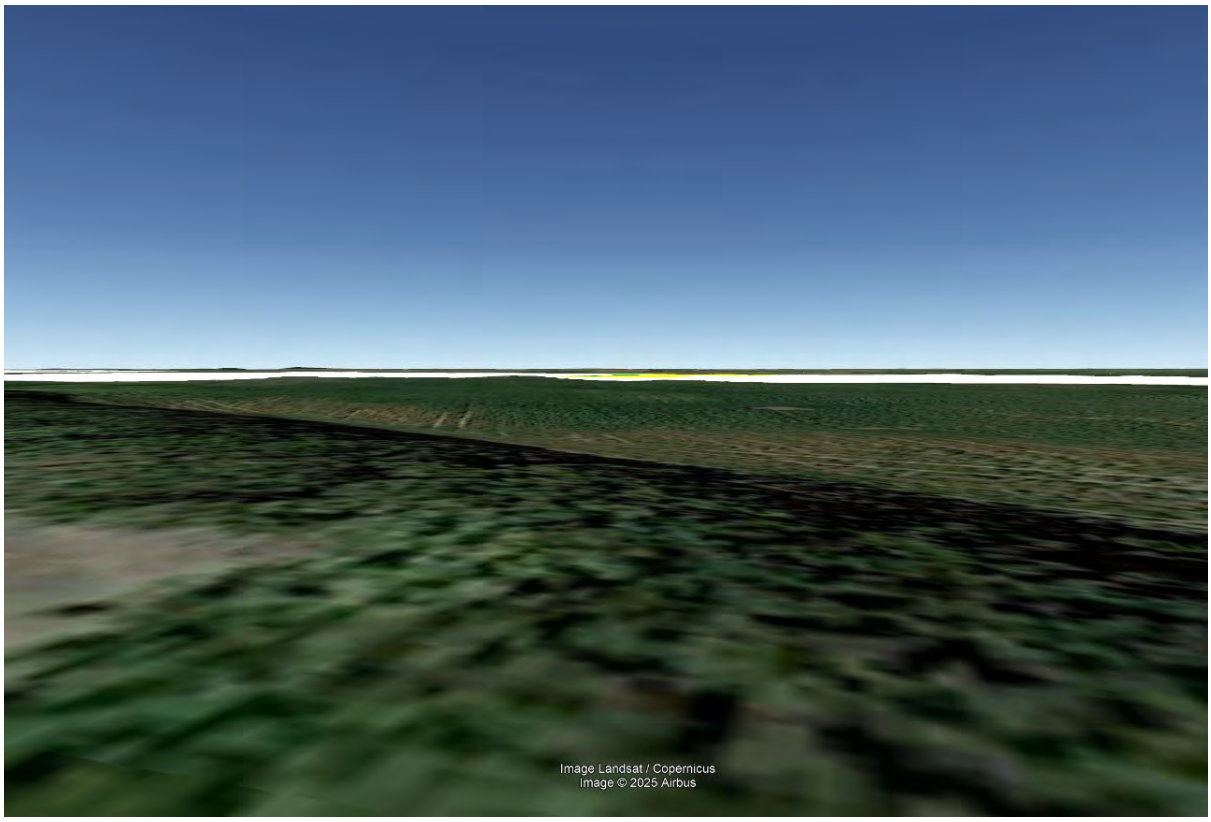


Receptor 53

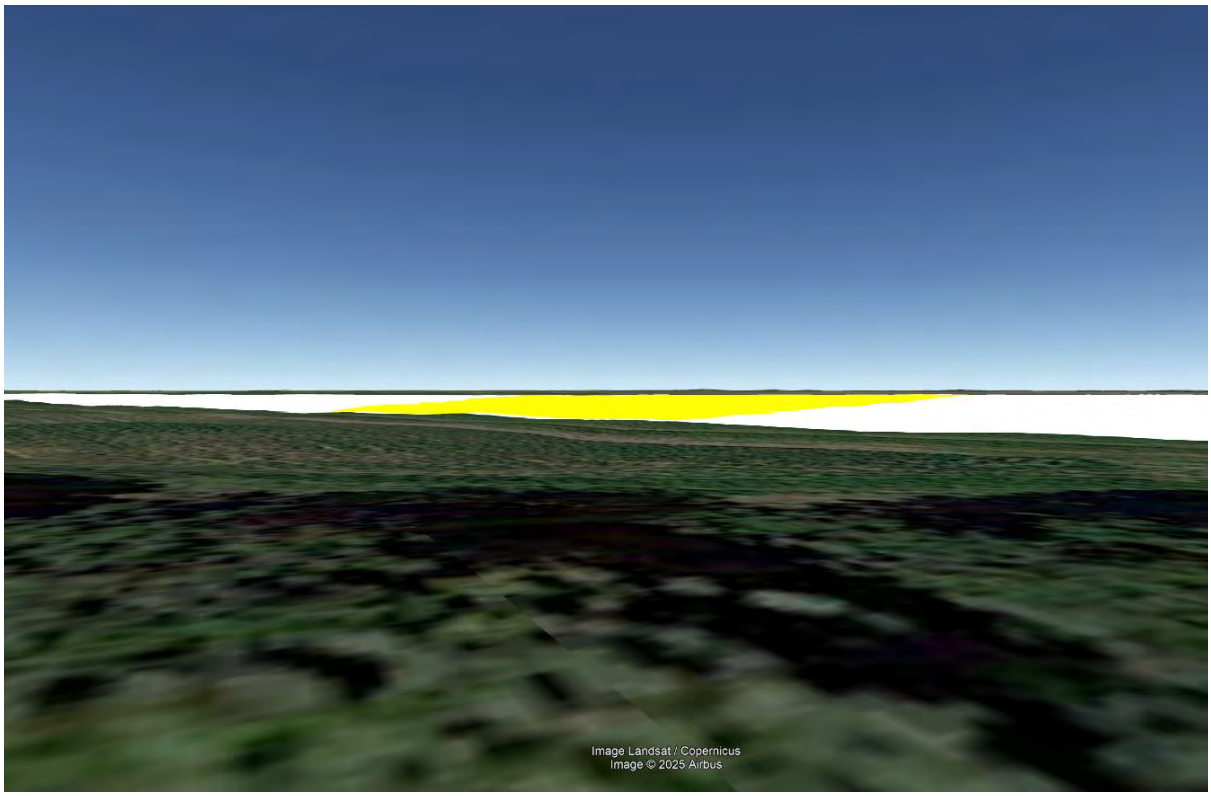




Receptor 54



Receptor 55



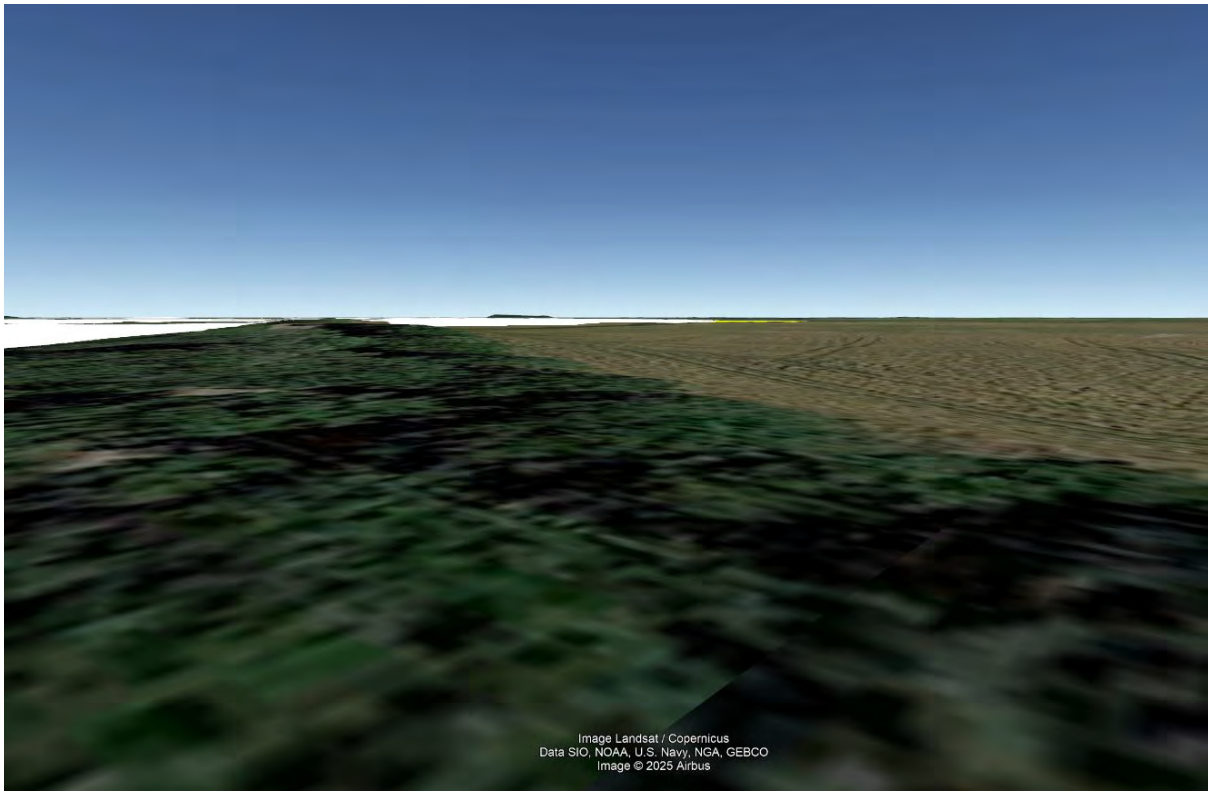
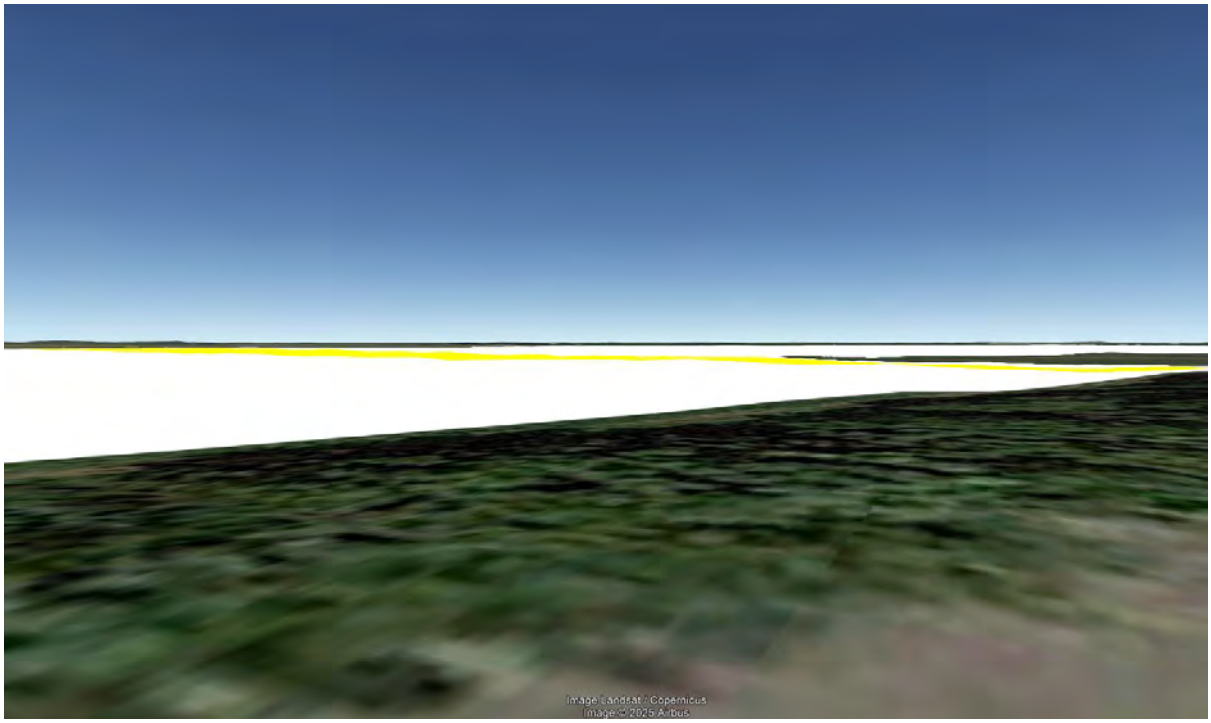


Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2025 Airbus

© 2025 Google

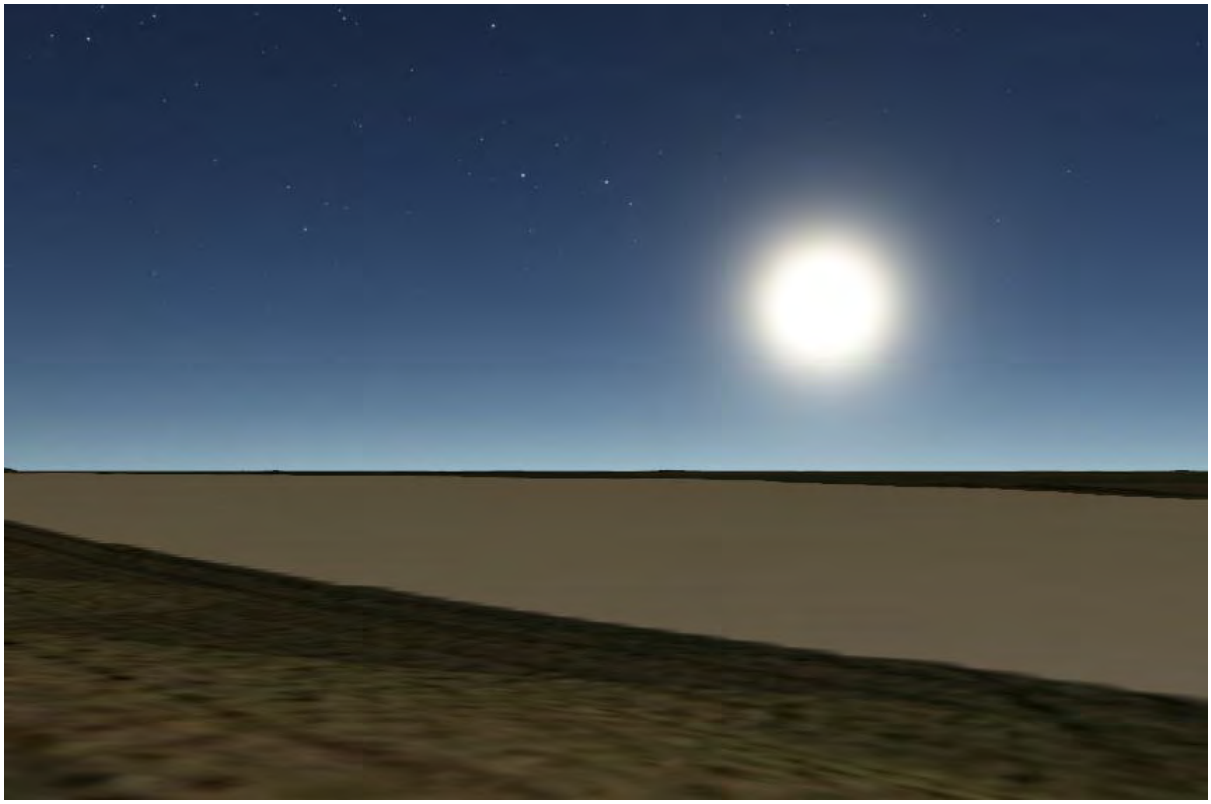
Receptor 56

Looking West

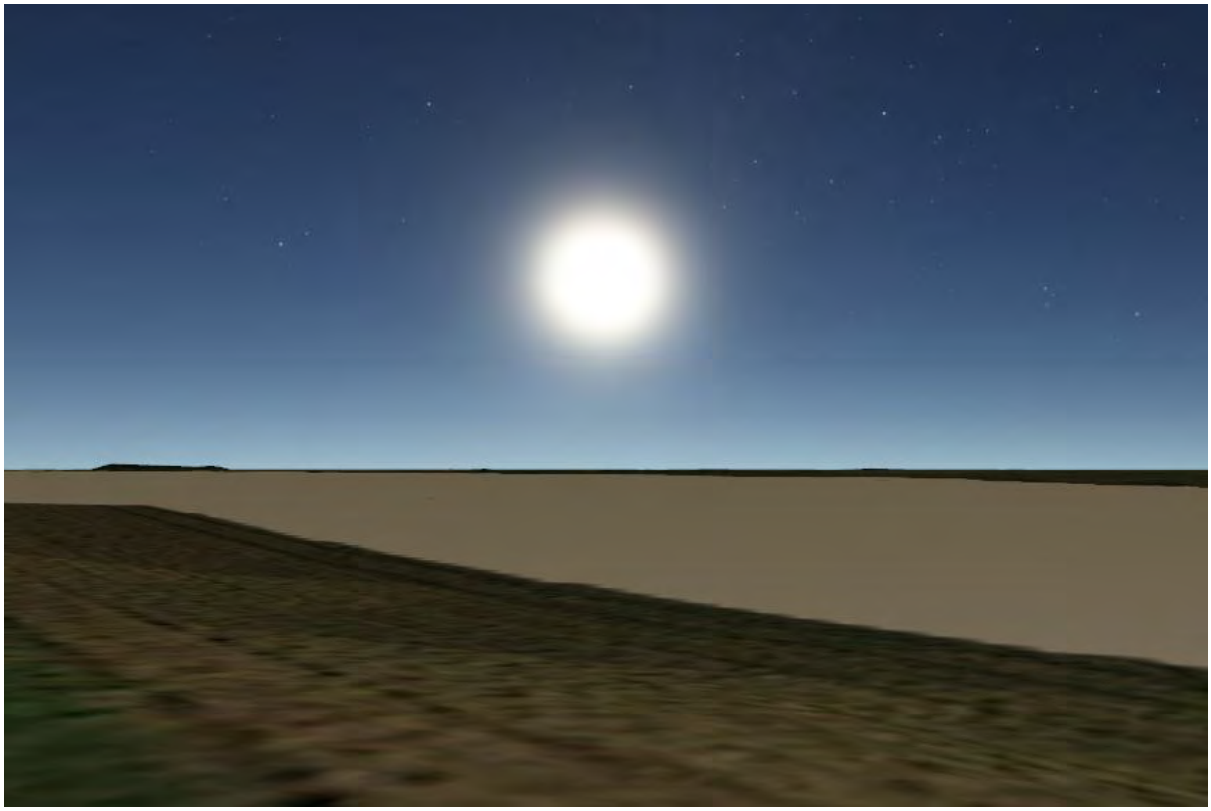


Looking East

April 15th 06:00 UTC

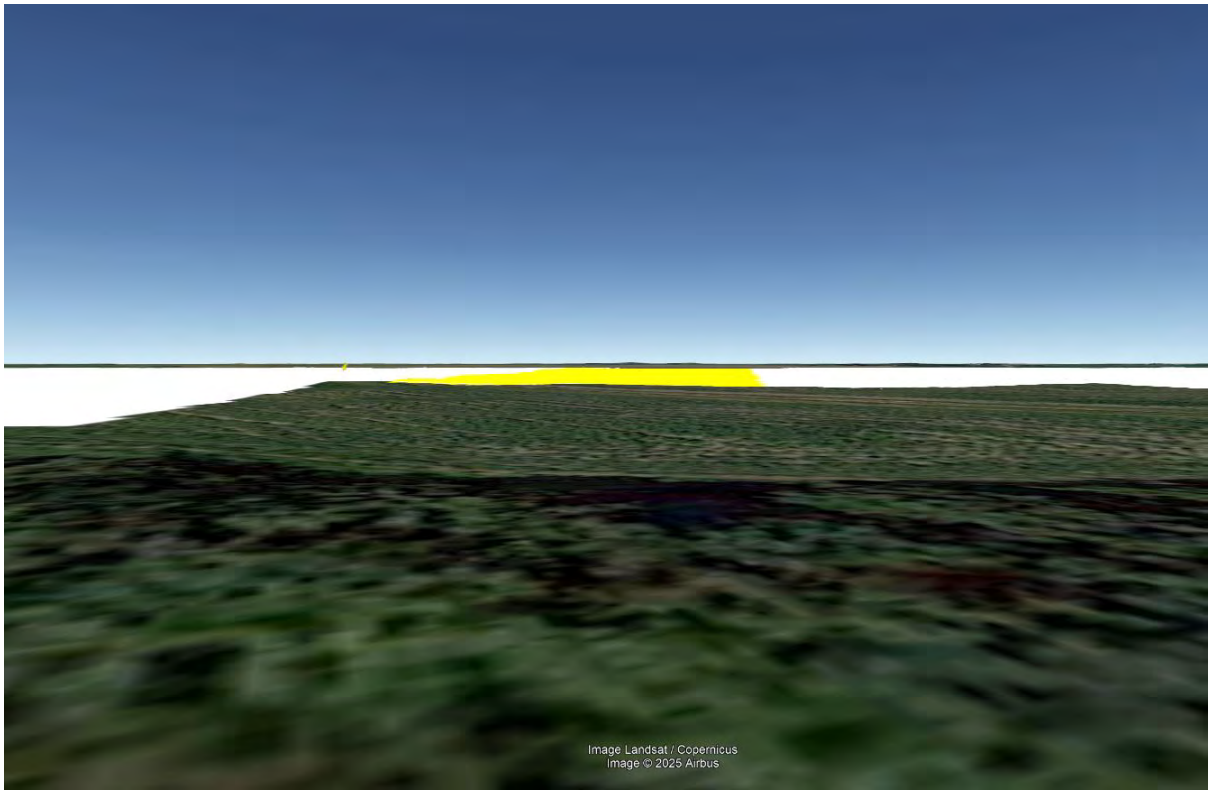


July 1st 05:00 UTC



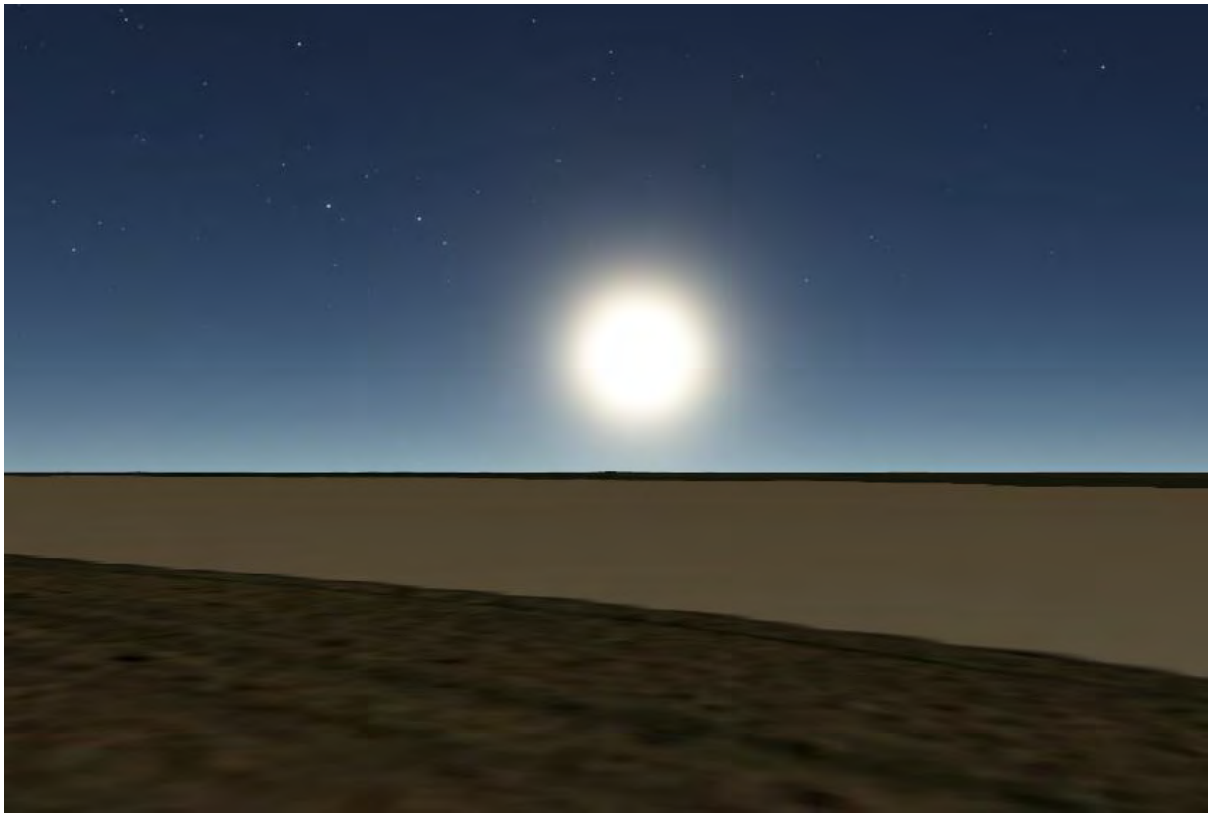
Receptor 57

Looking West

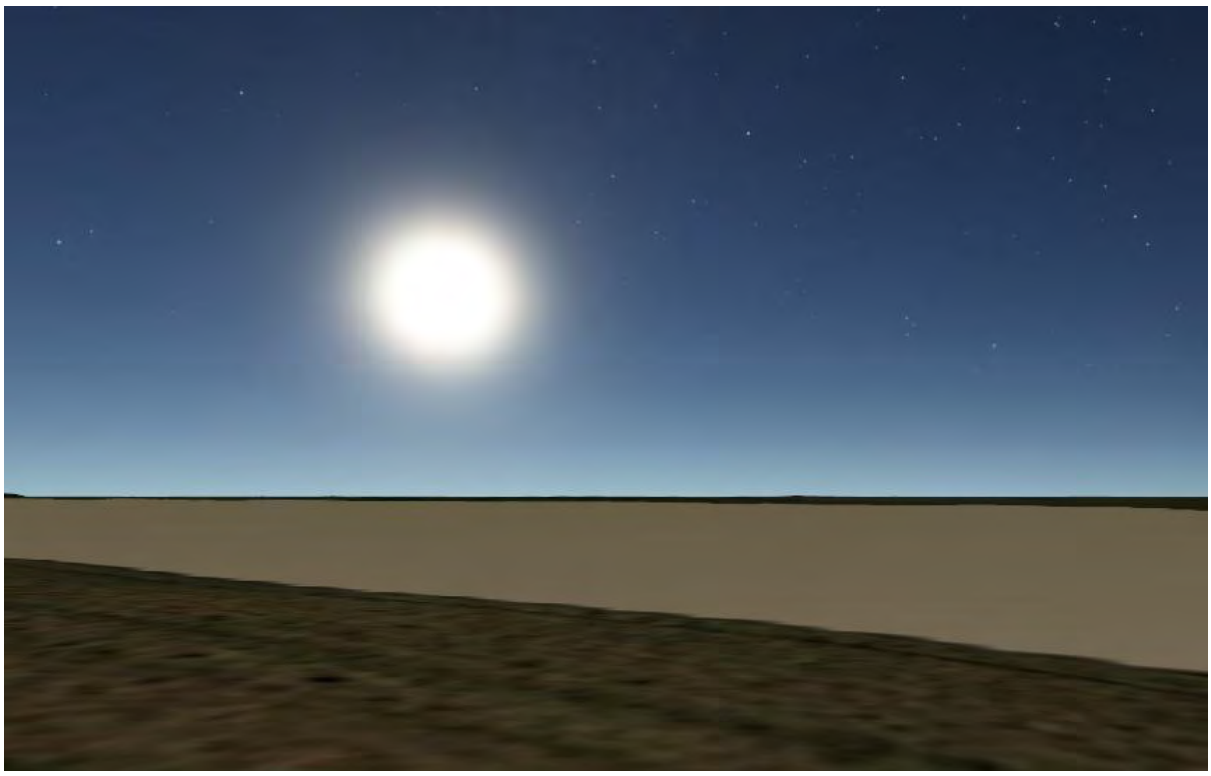


Looking East

April 15th 05:45 UTC



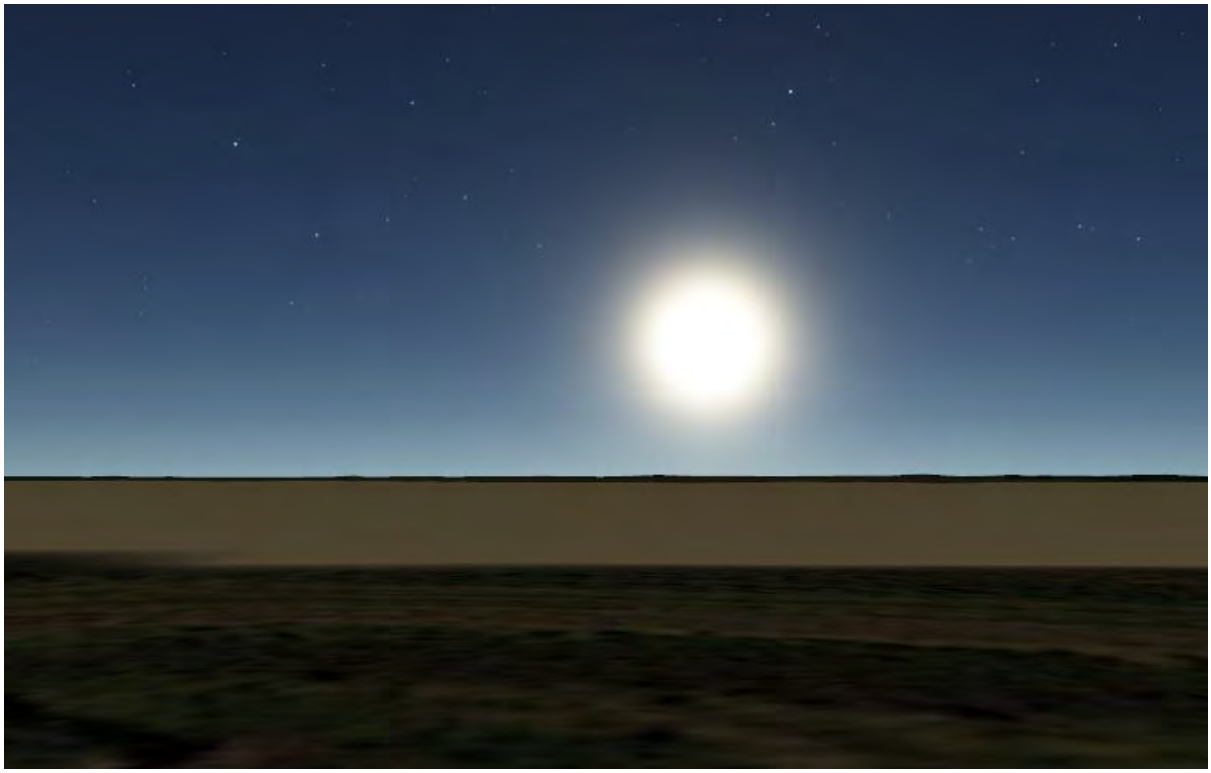
July 1st 05:00 UTC



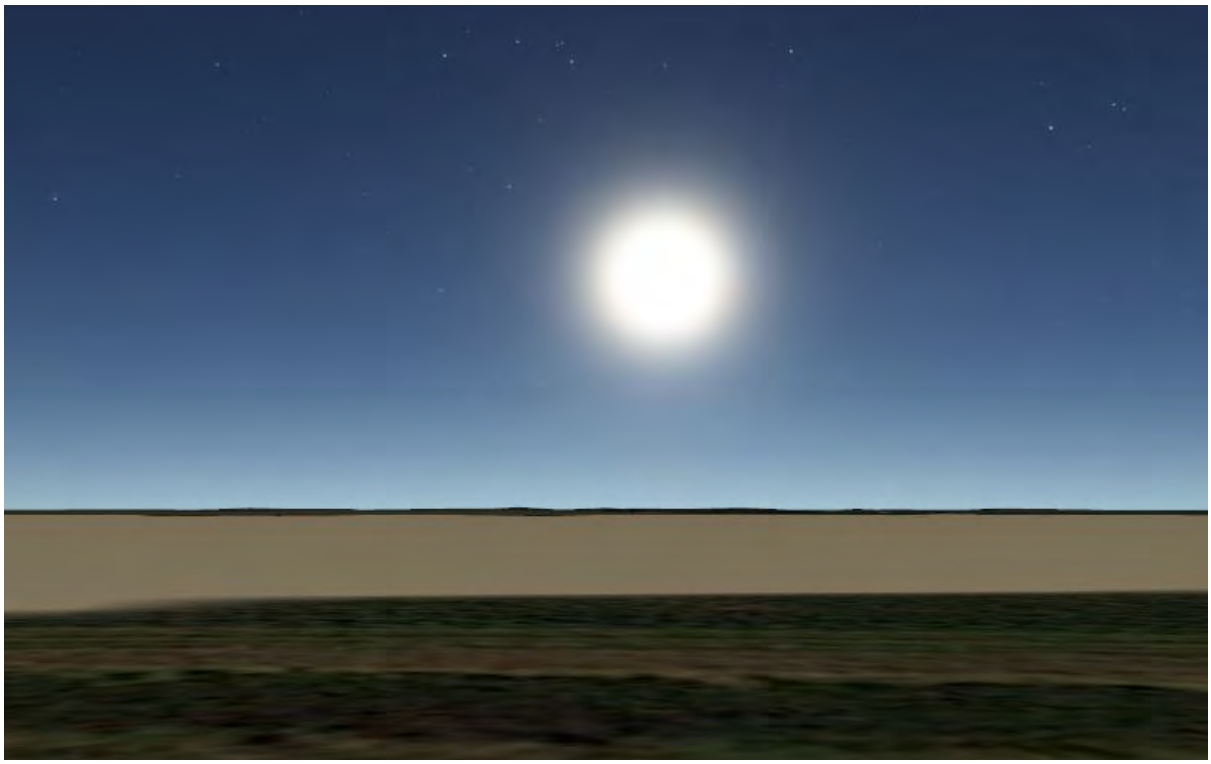
Receptor 58

Looking West

April 15th 18:15 UTC

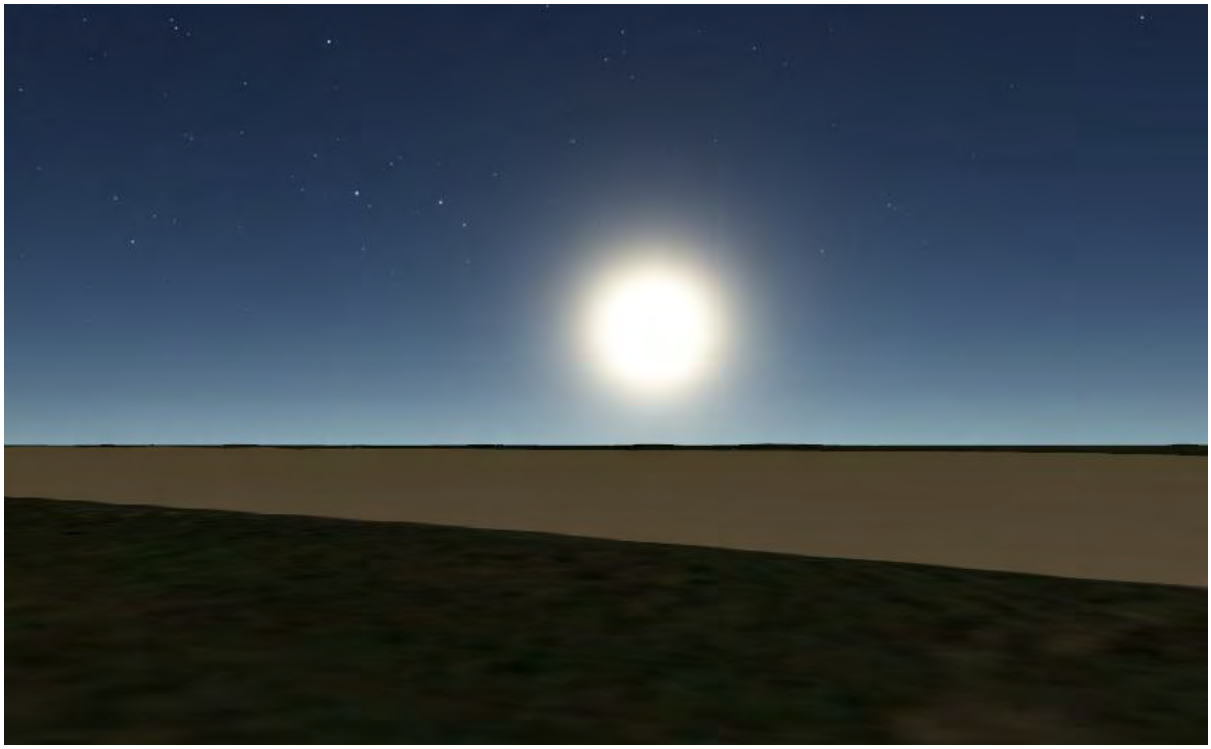


July 1st 19:00 UTC

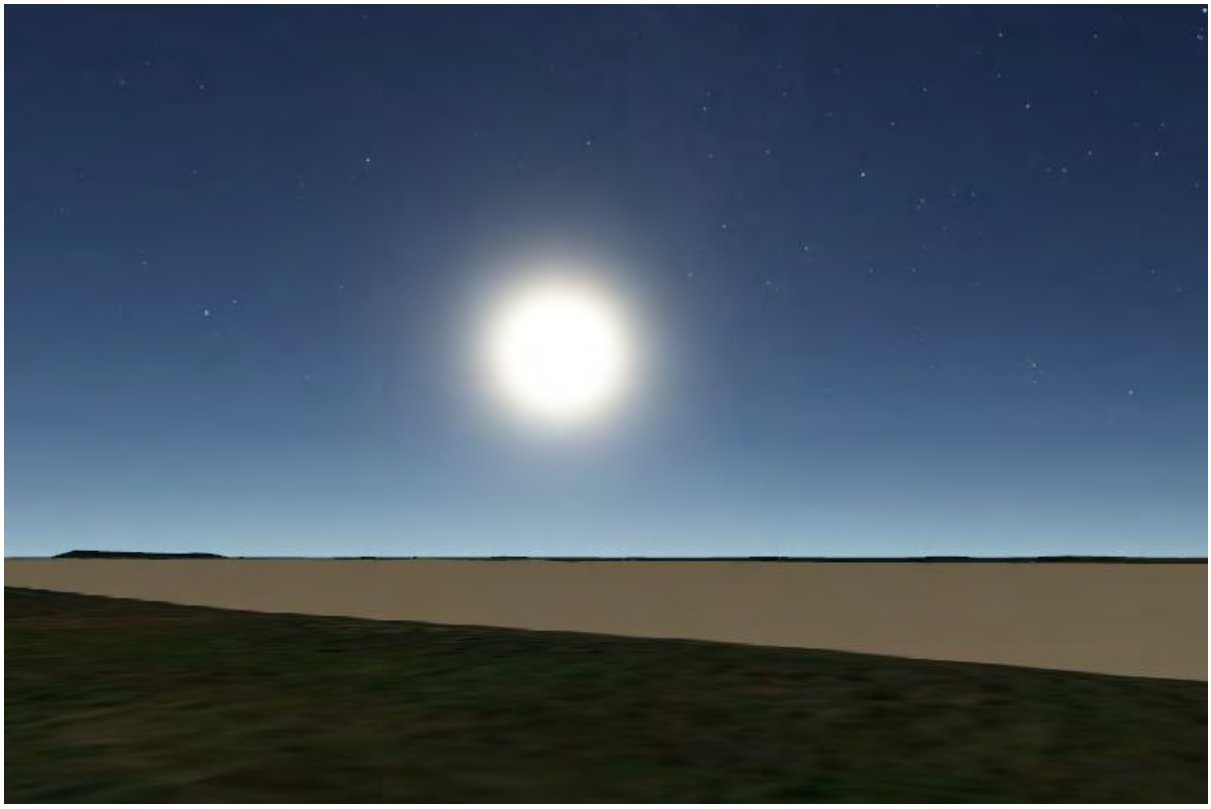


Looking East

April 15th 05:45 UTC



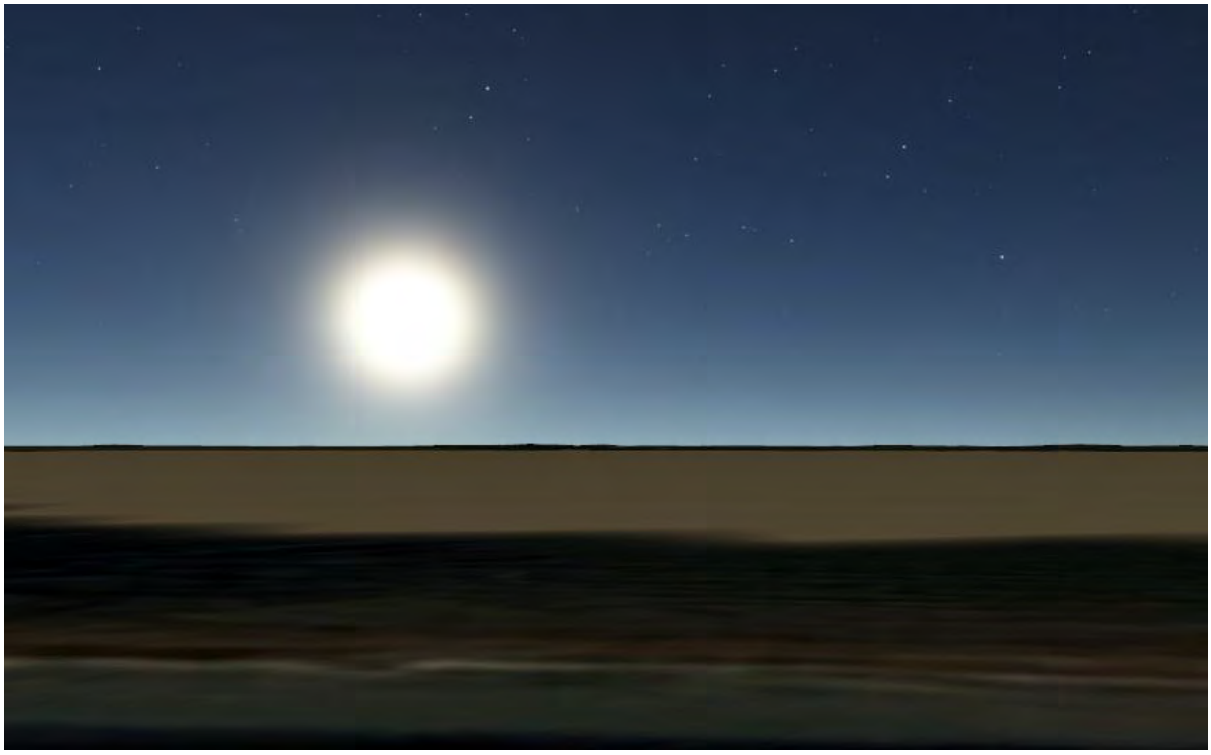
July 1st 05:00 UTC



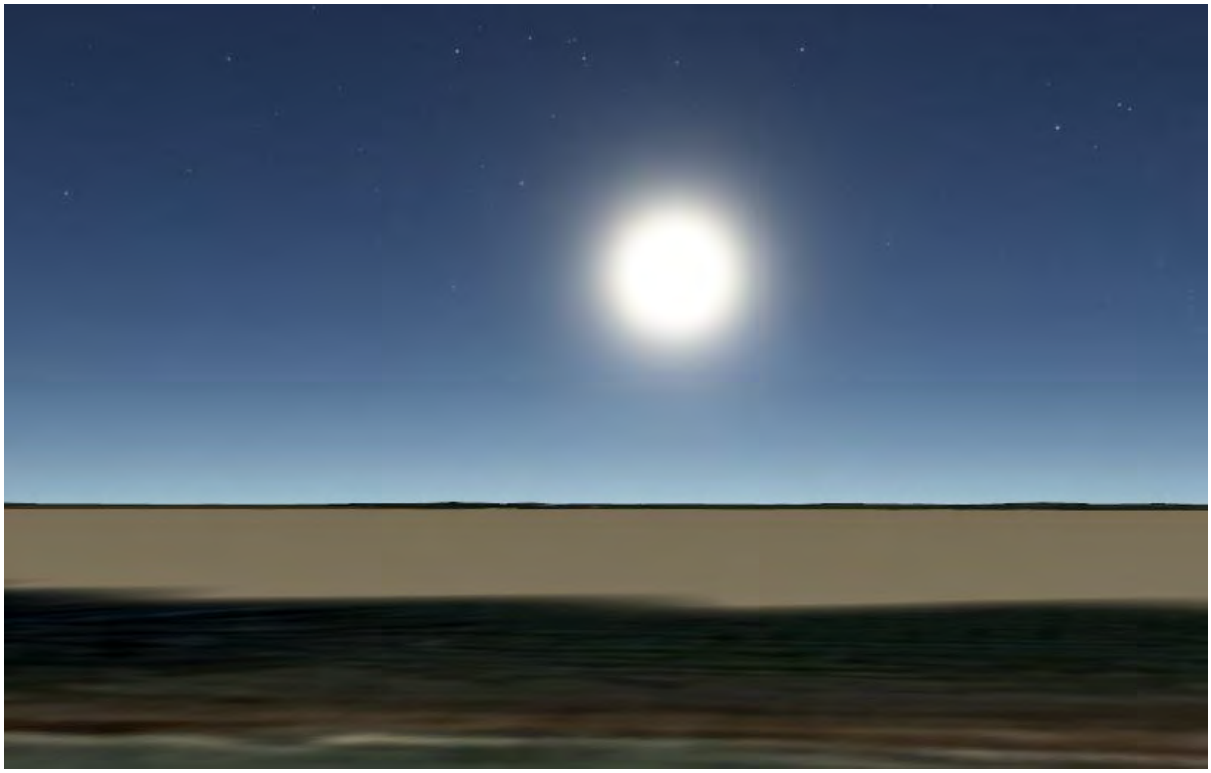
Receptor 59

Looking West

April 15th 18:15 UTC

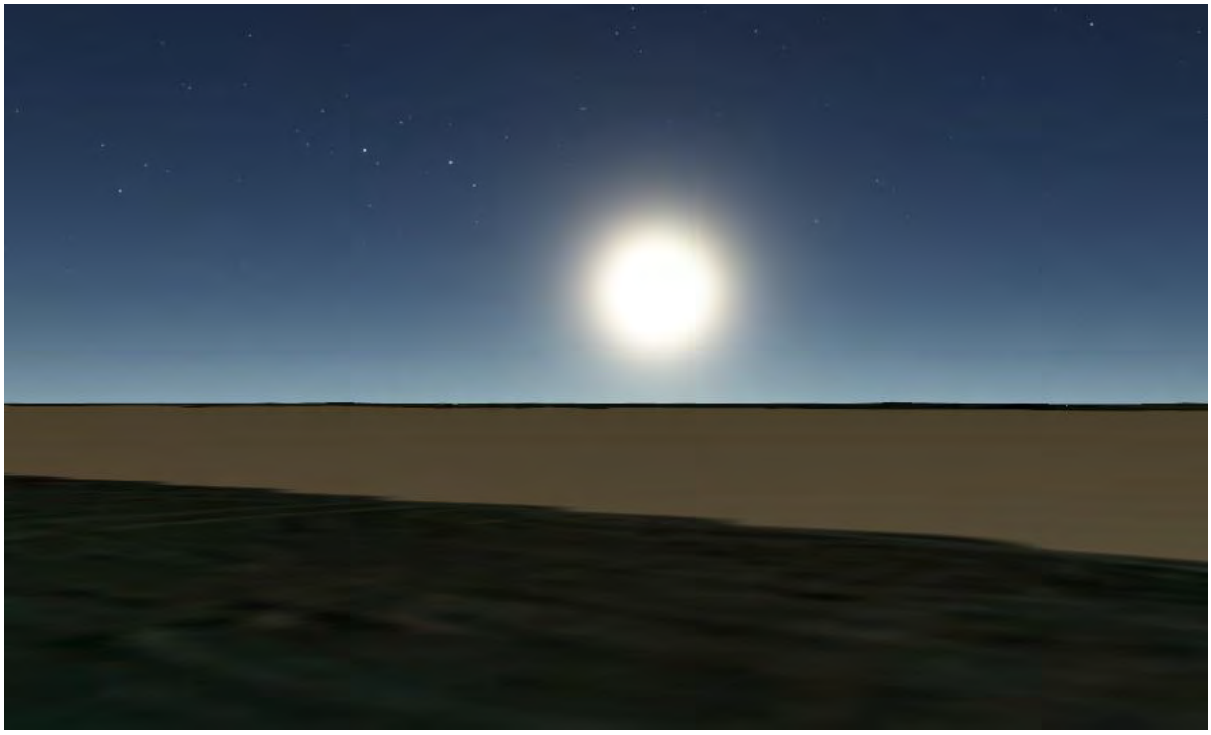


July 1st 19:00 UTC

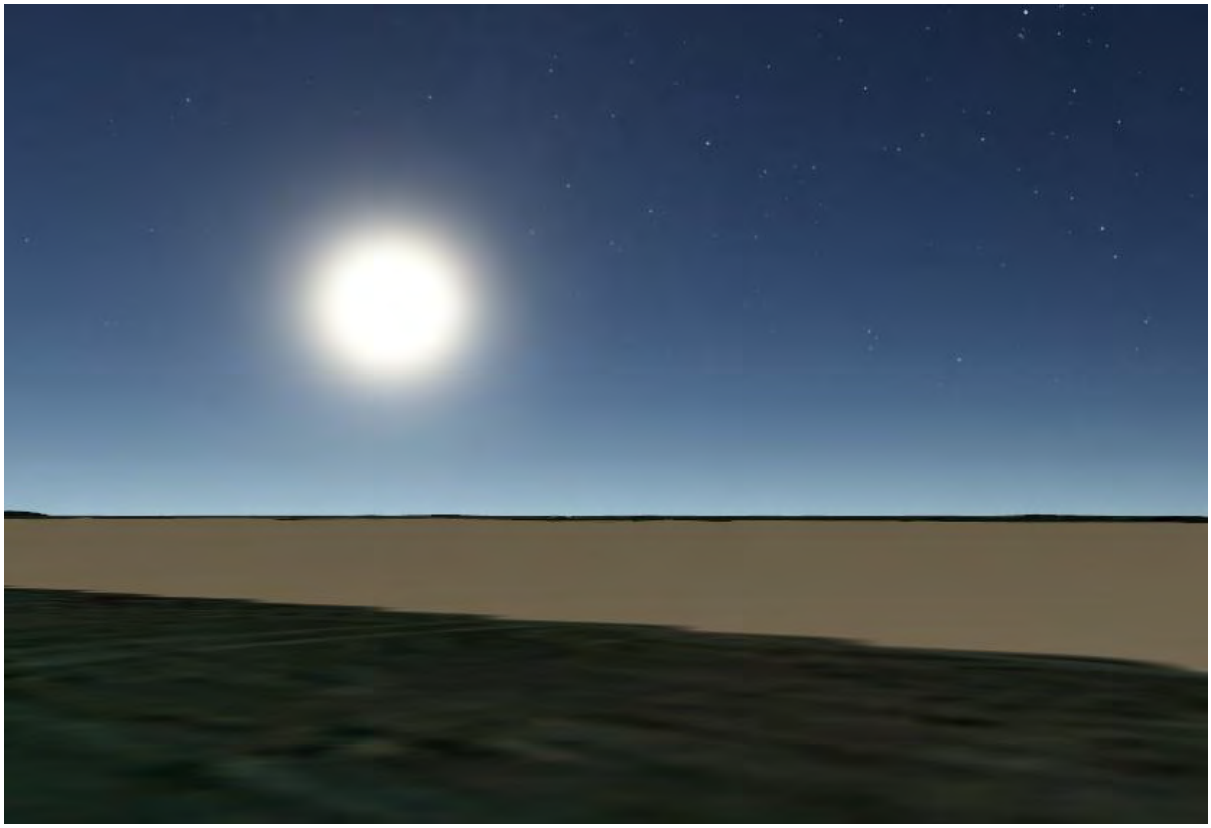


Looking East

April 15th 05:45 UTC



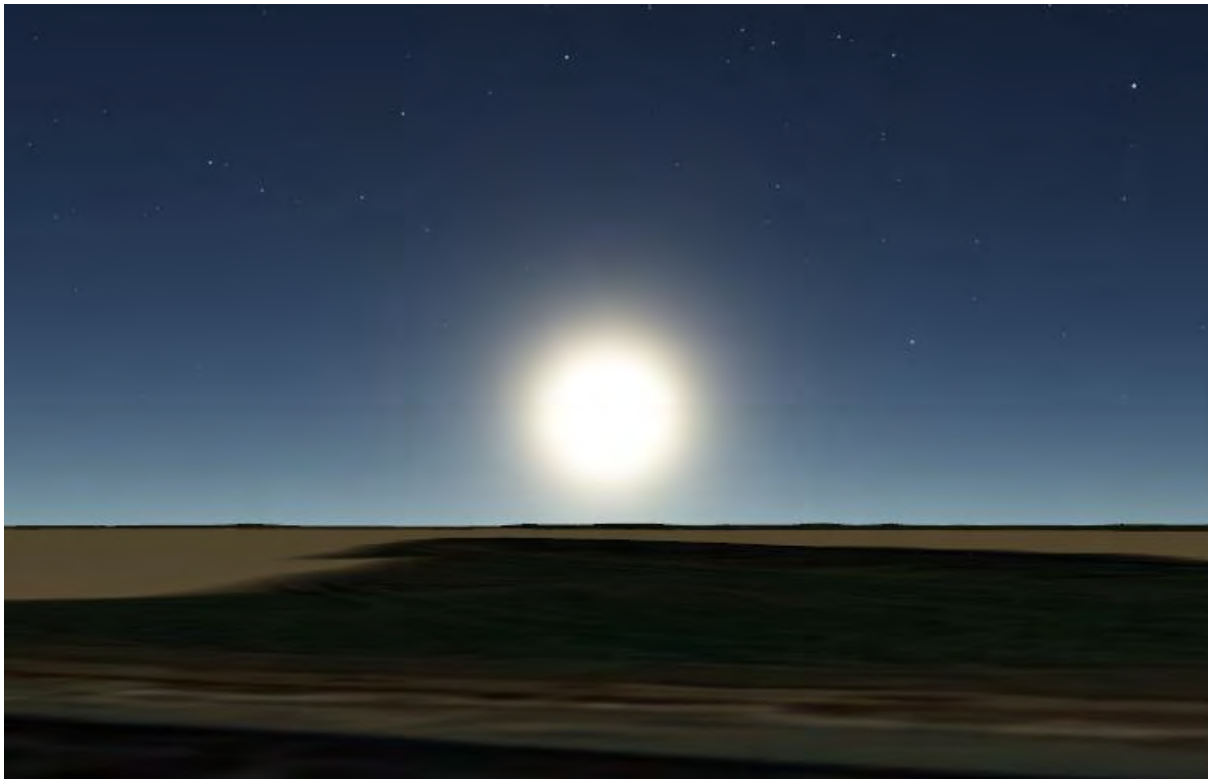
July 1st 05:00 UTC



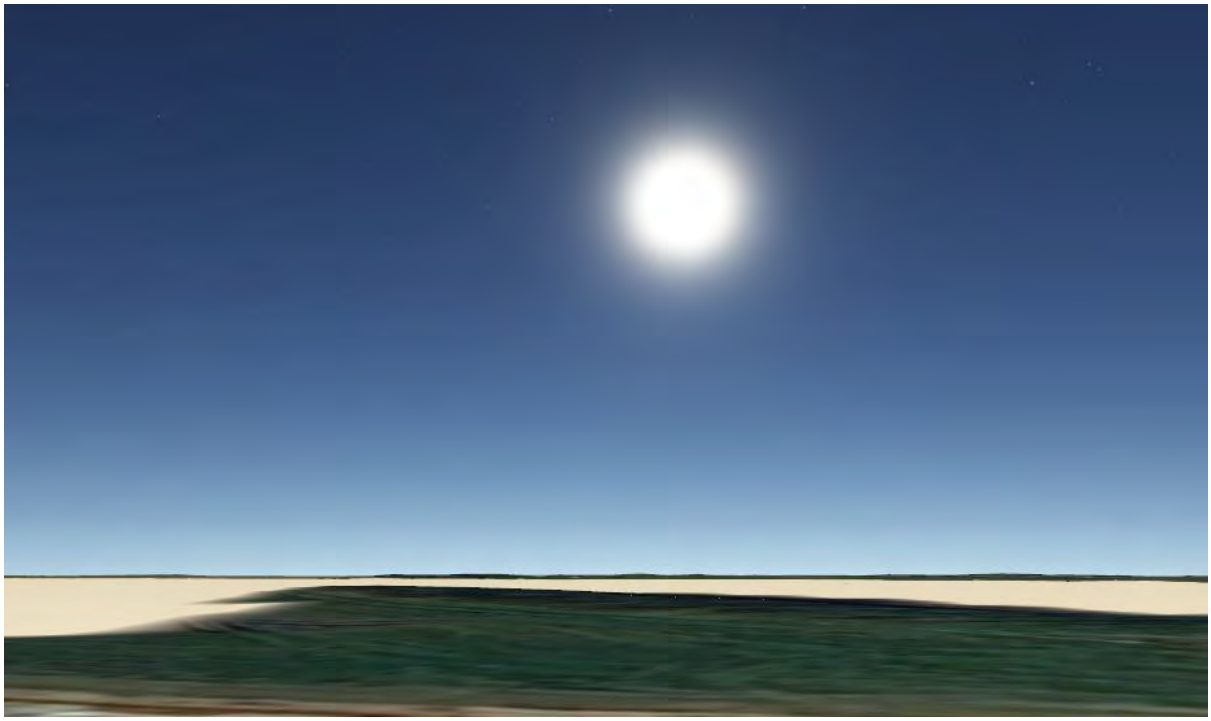
Receptor 60

Looking West

April 1st 18:00 UTC

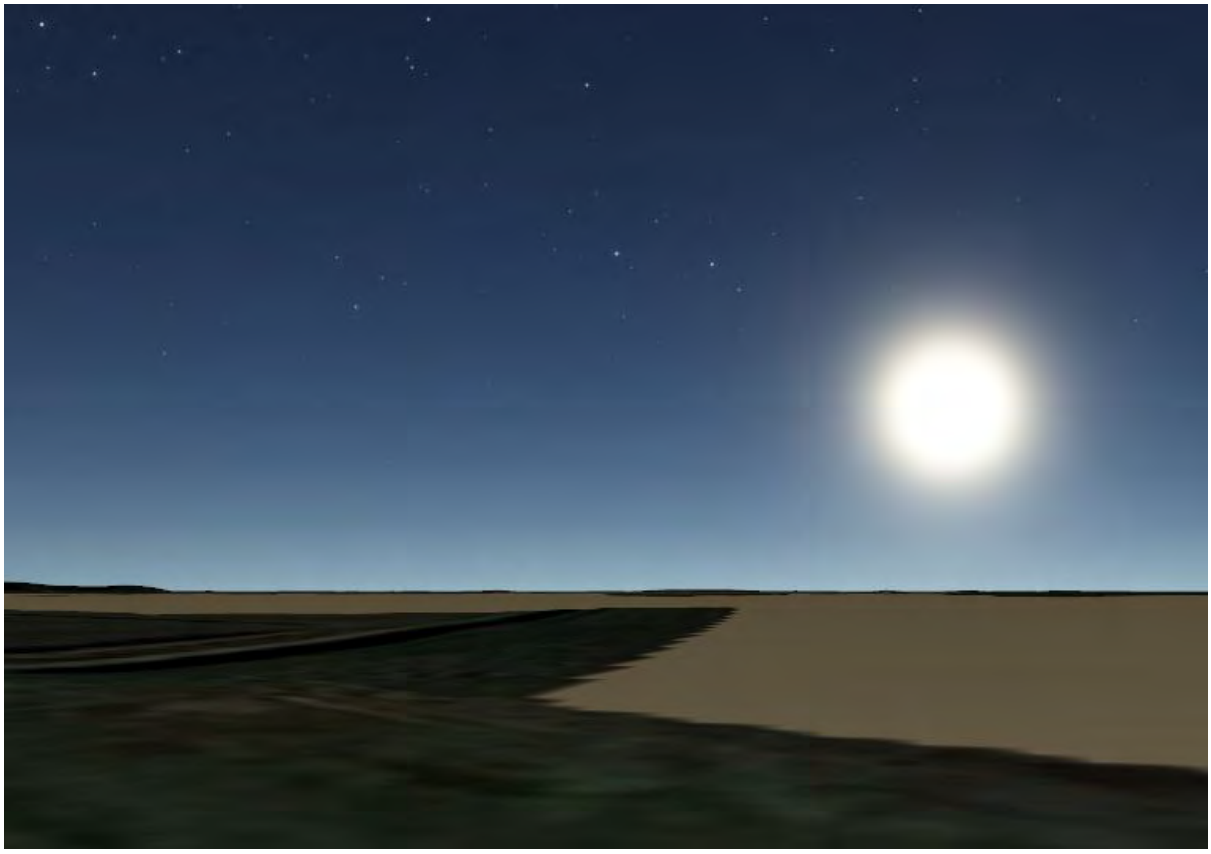


July 1st 18:00 UTC

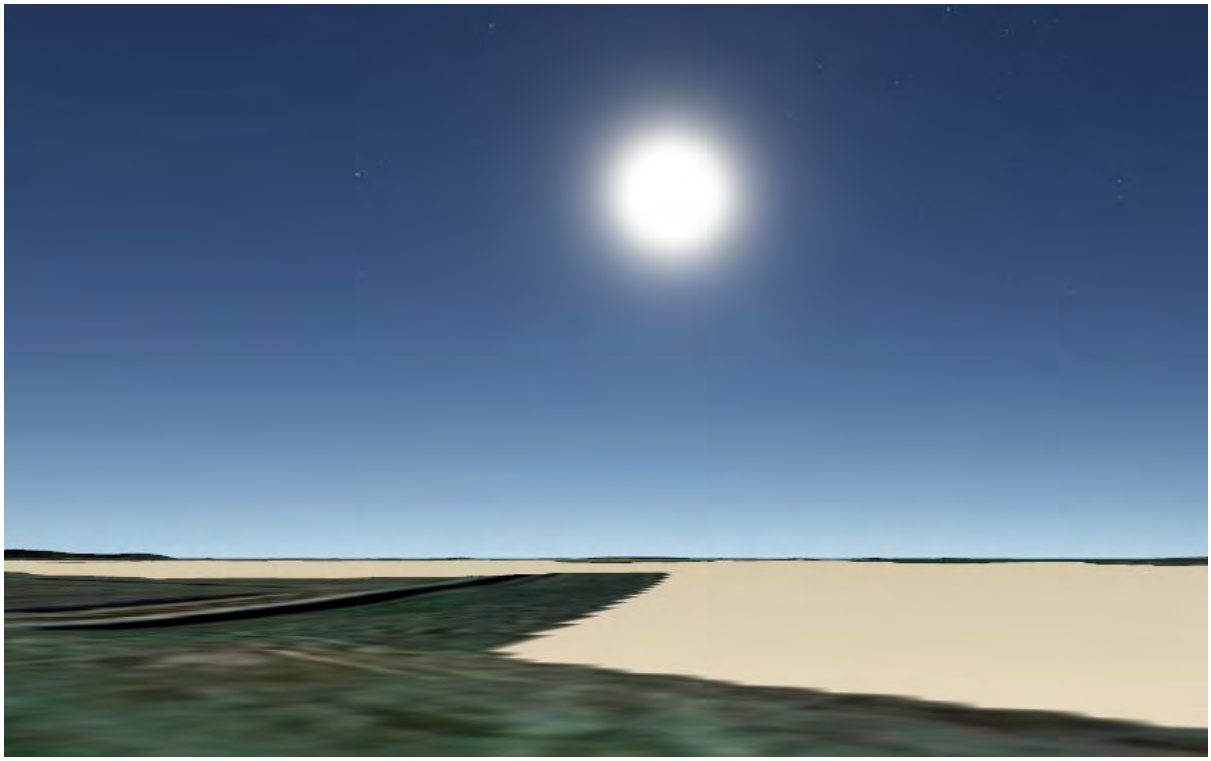


Looking East

April 15th 06:00 UTC



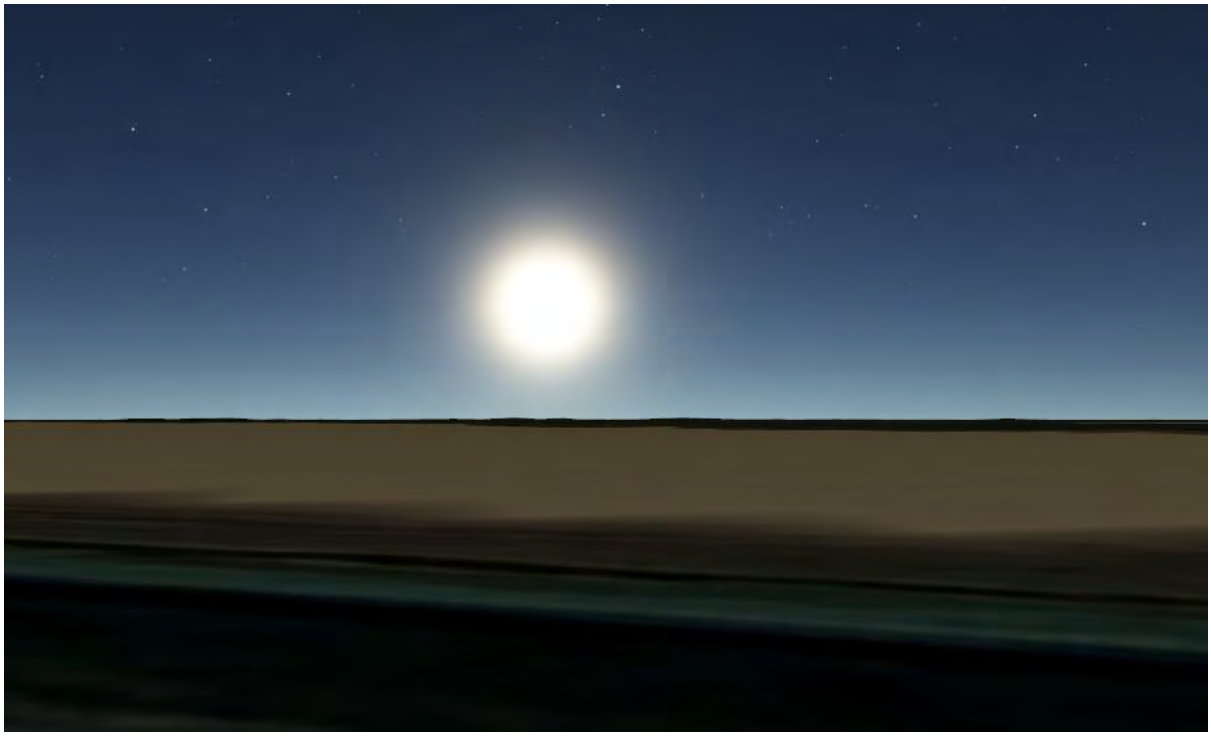
July 1st 06:00 UTC



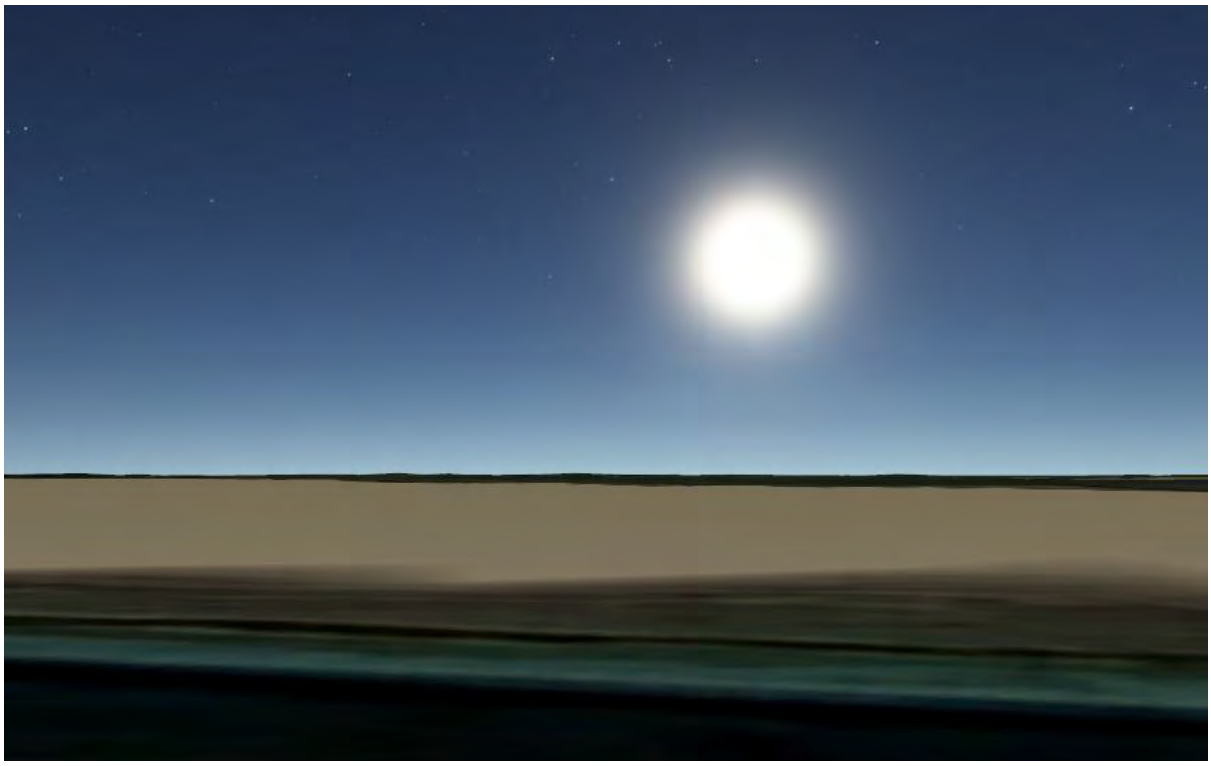
Receptor 61

Looking West

April 15th 18:15 UTC

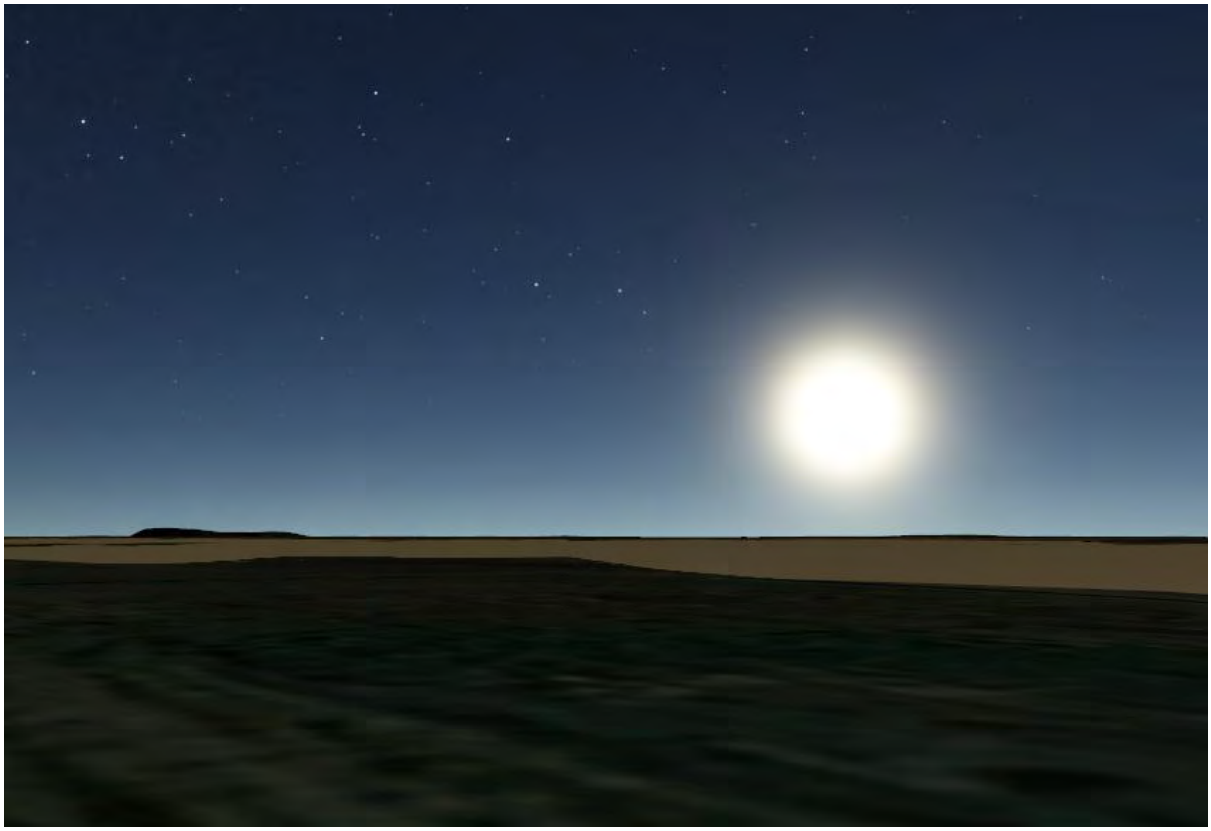


July 1st 19:00 UTC

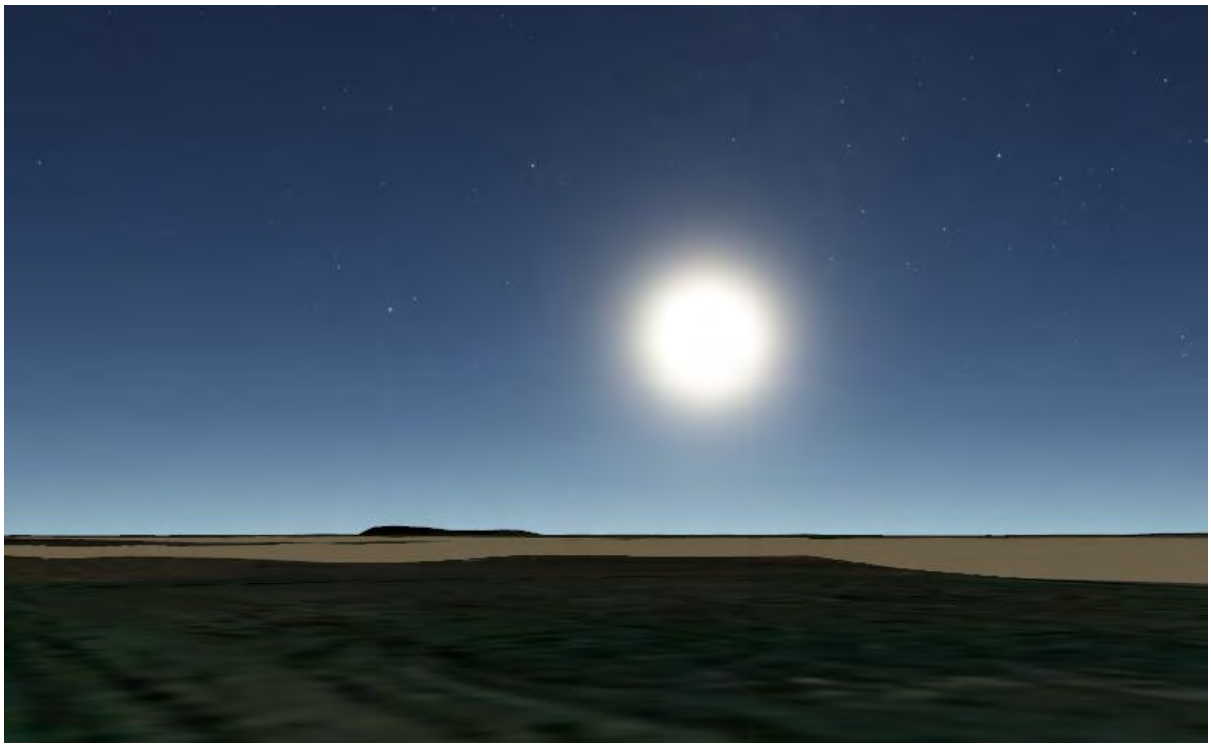


Looking East

April 15th 05:45 UTC



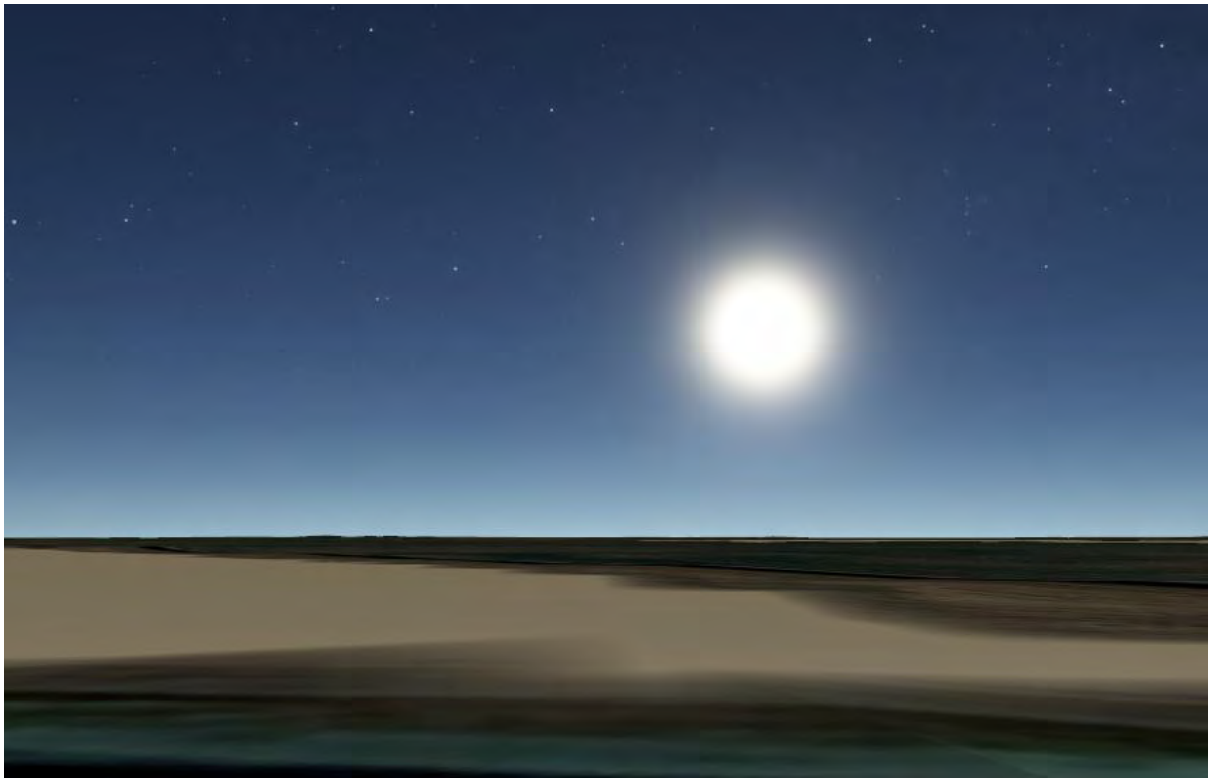
July 1st 05:00 UTC



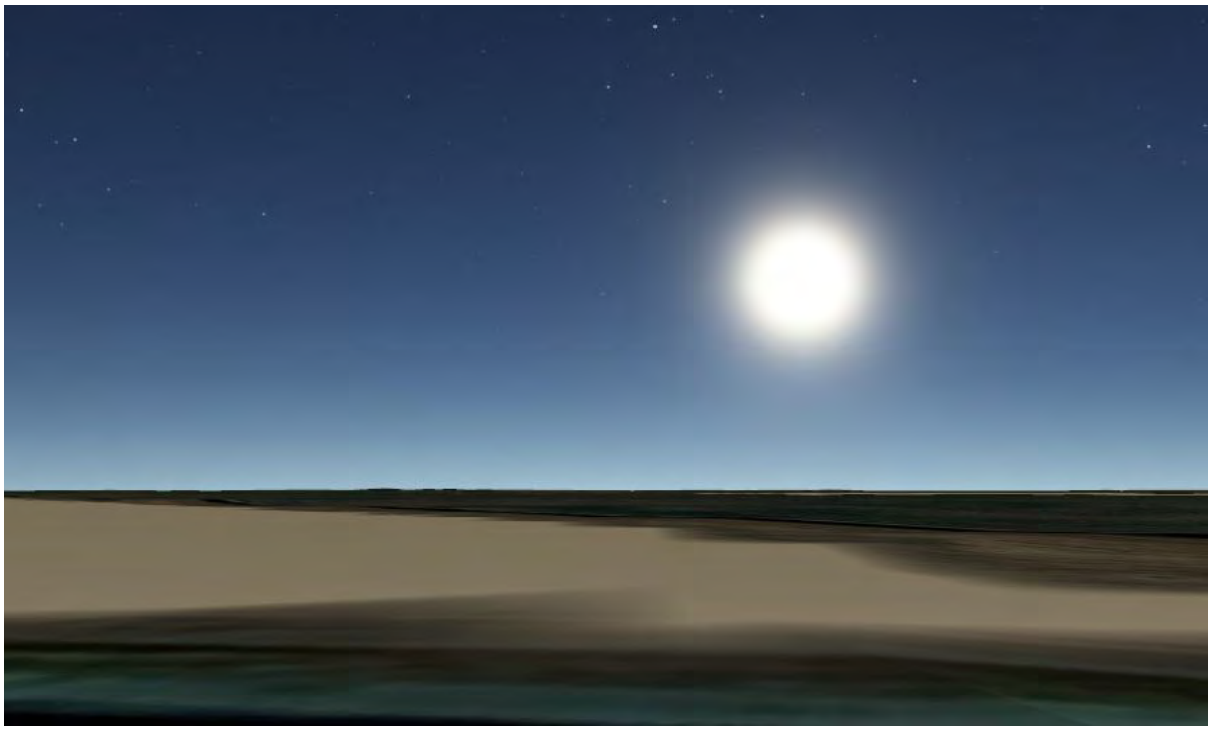
Receptor 62

Looking West

June 15th 19:00 UTC

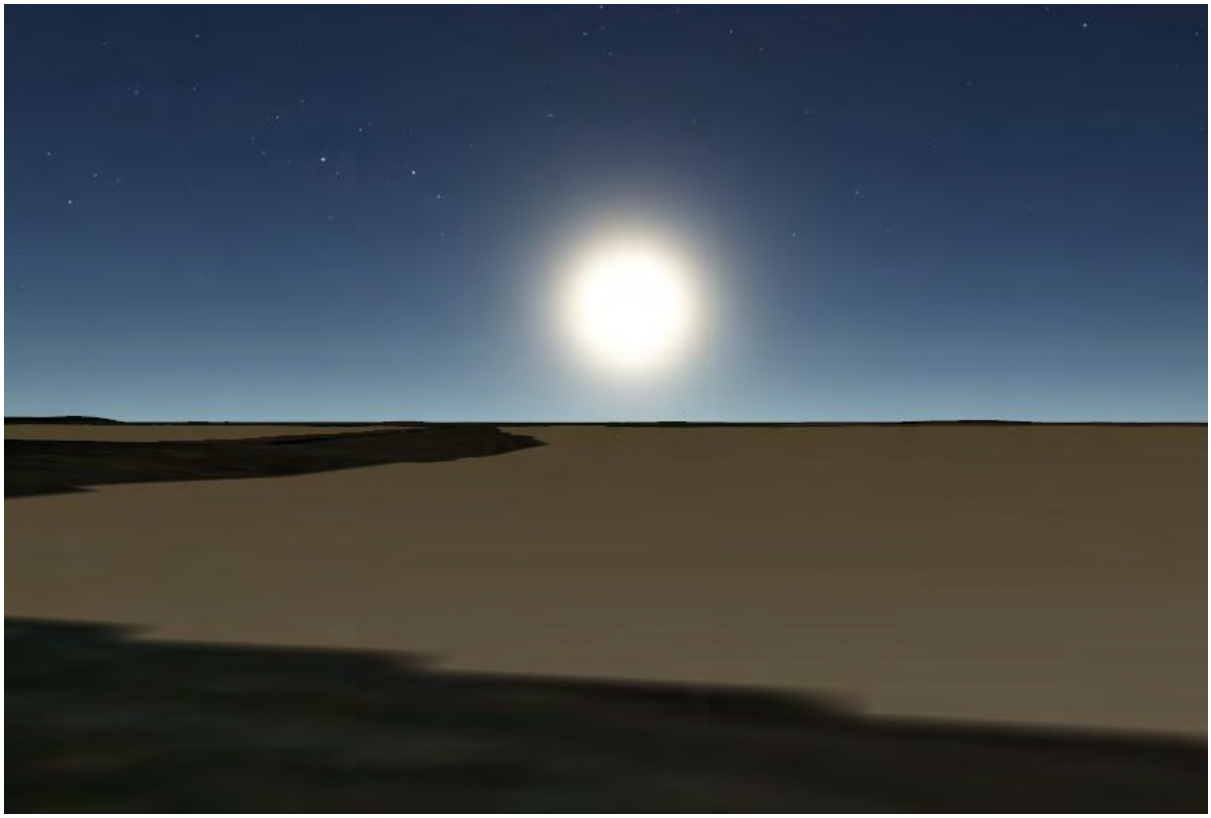


July 1st 19:00 UTC

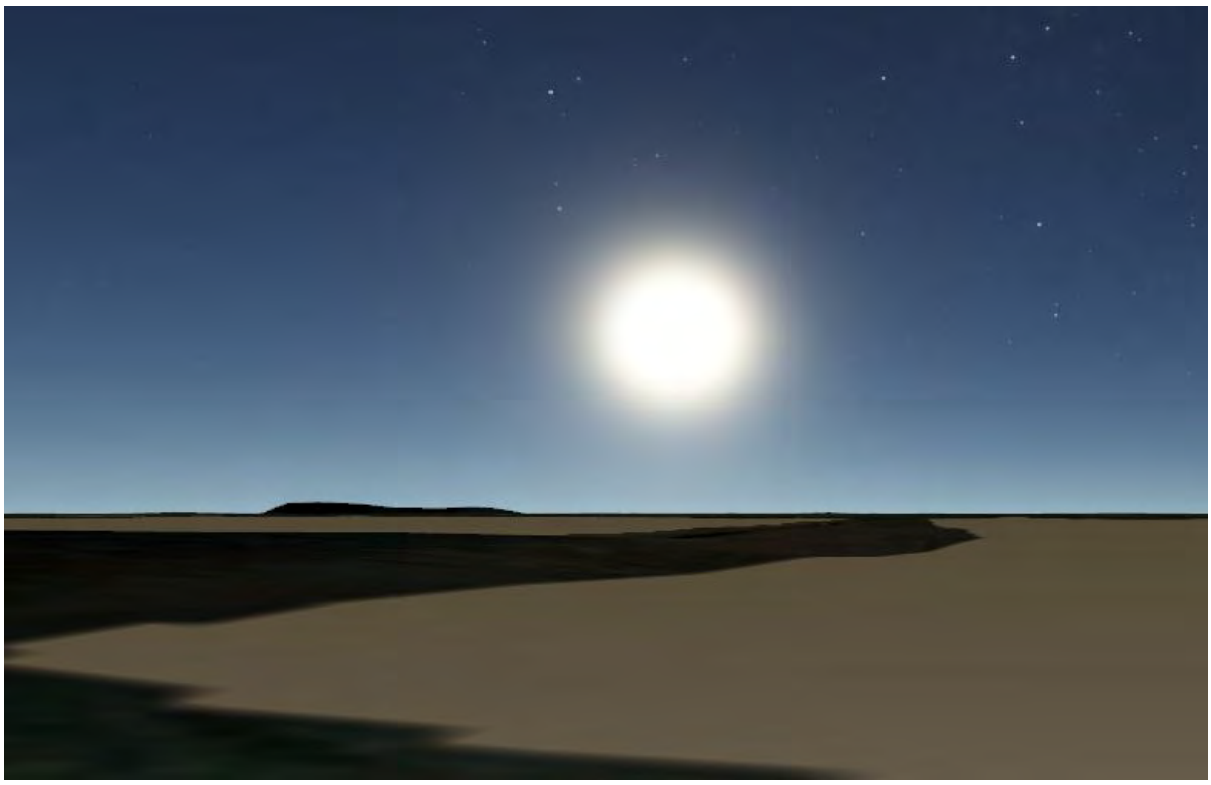


Looking East

April 15th 05:45 UTC



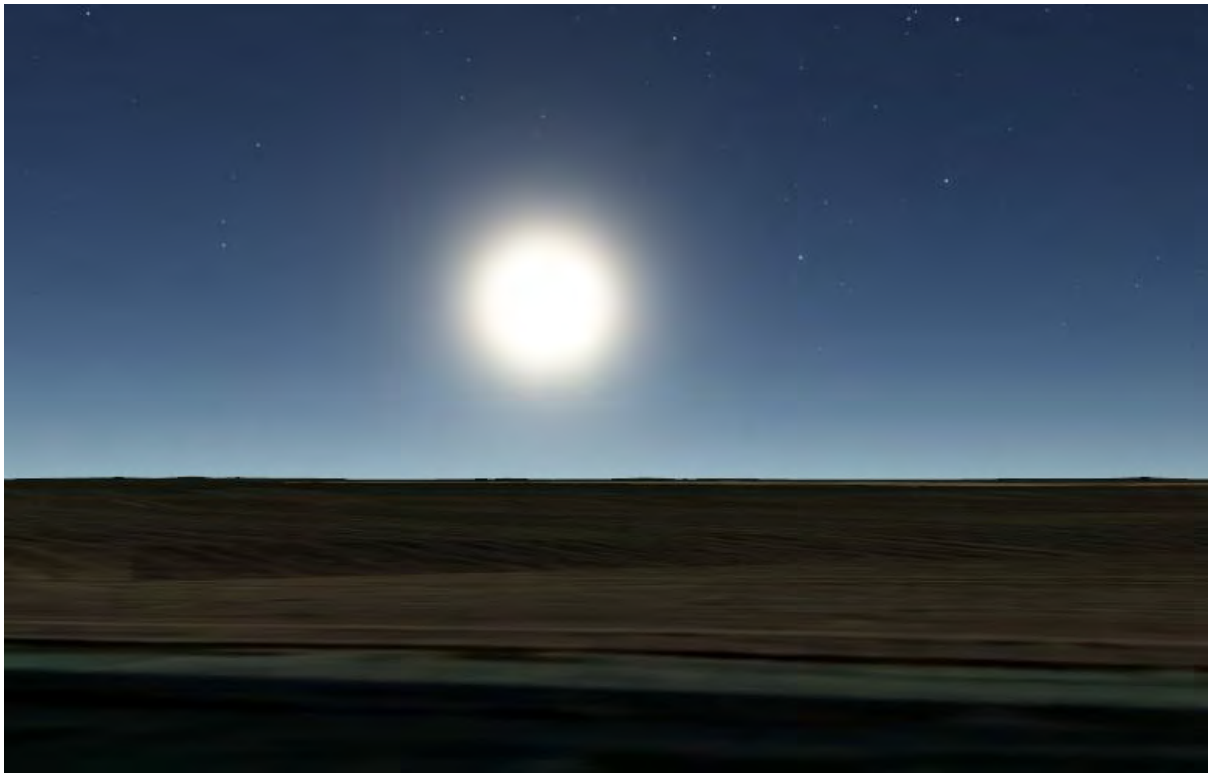
July 1st 05:00 UTC



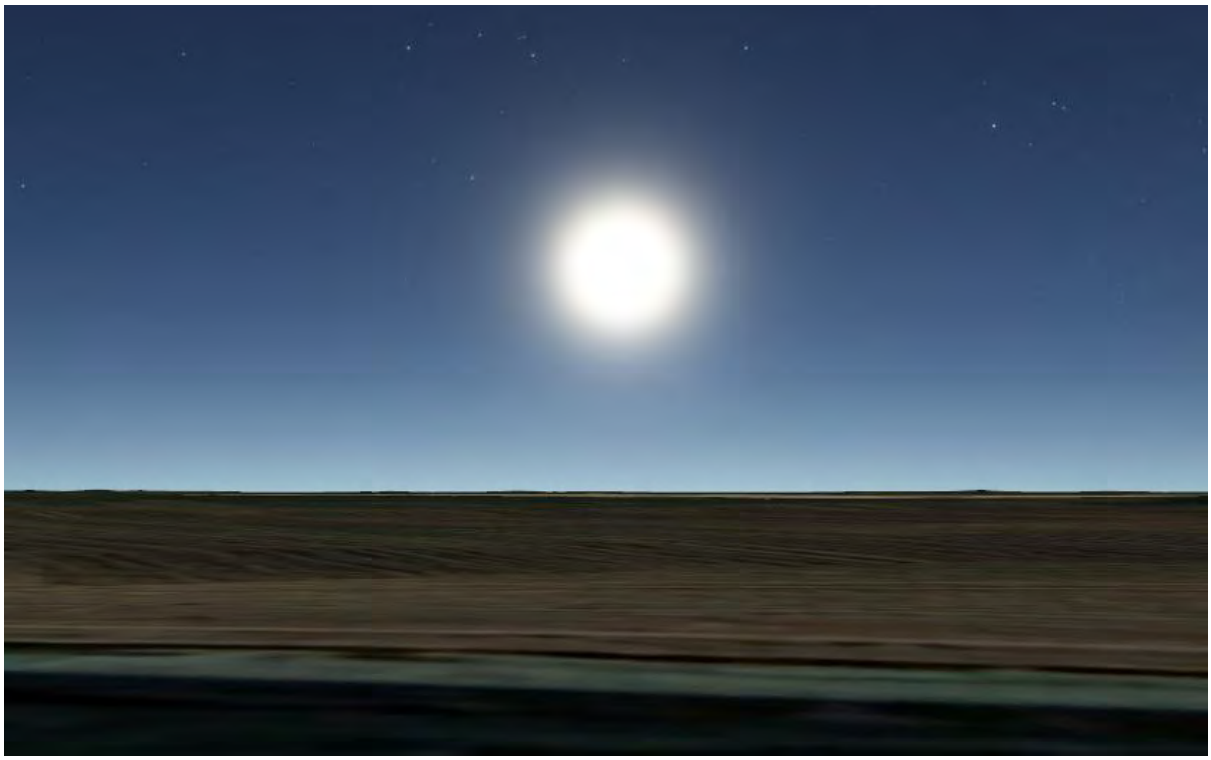
Receptor 63

Looking West

May 1st 18:30 UTC

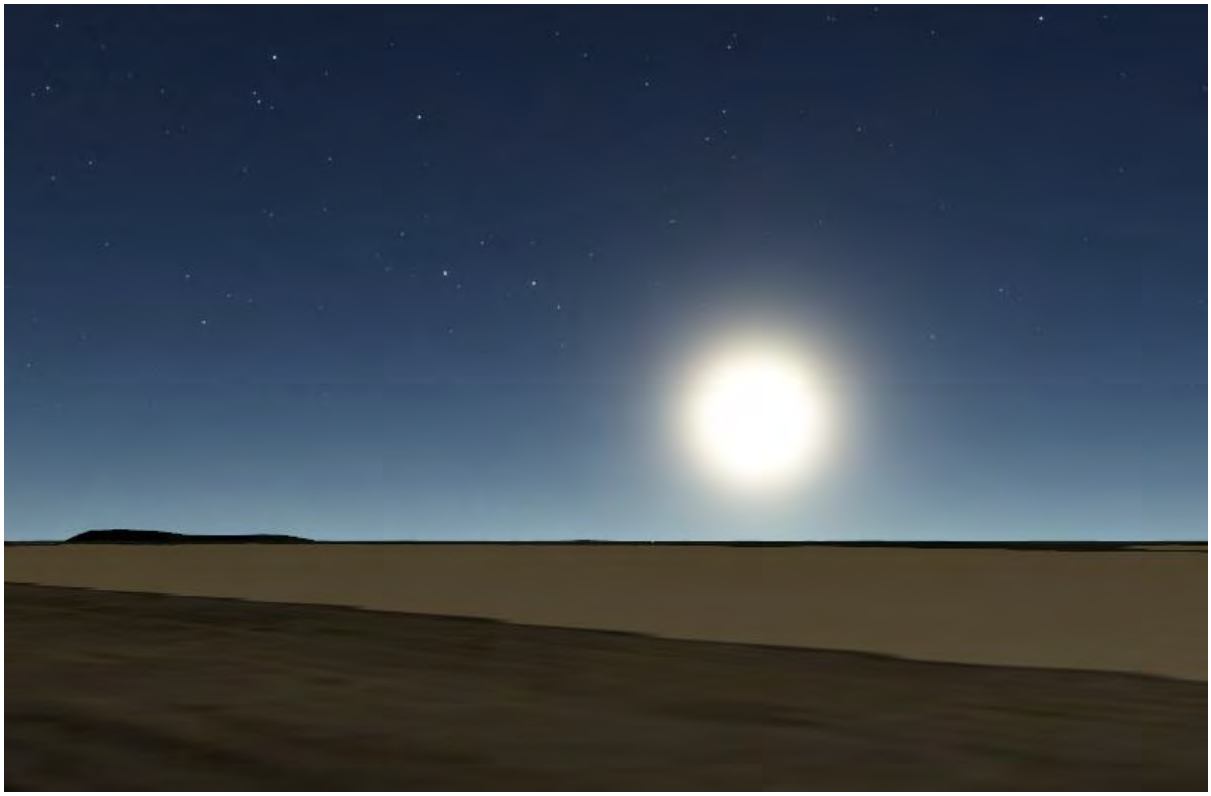


July 1st 19:00 UTC

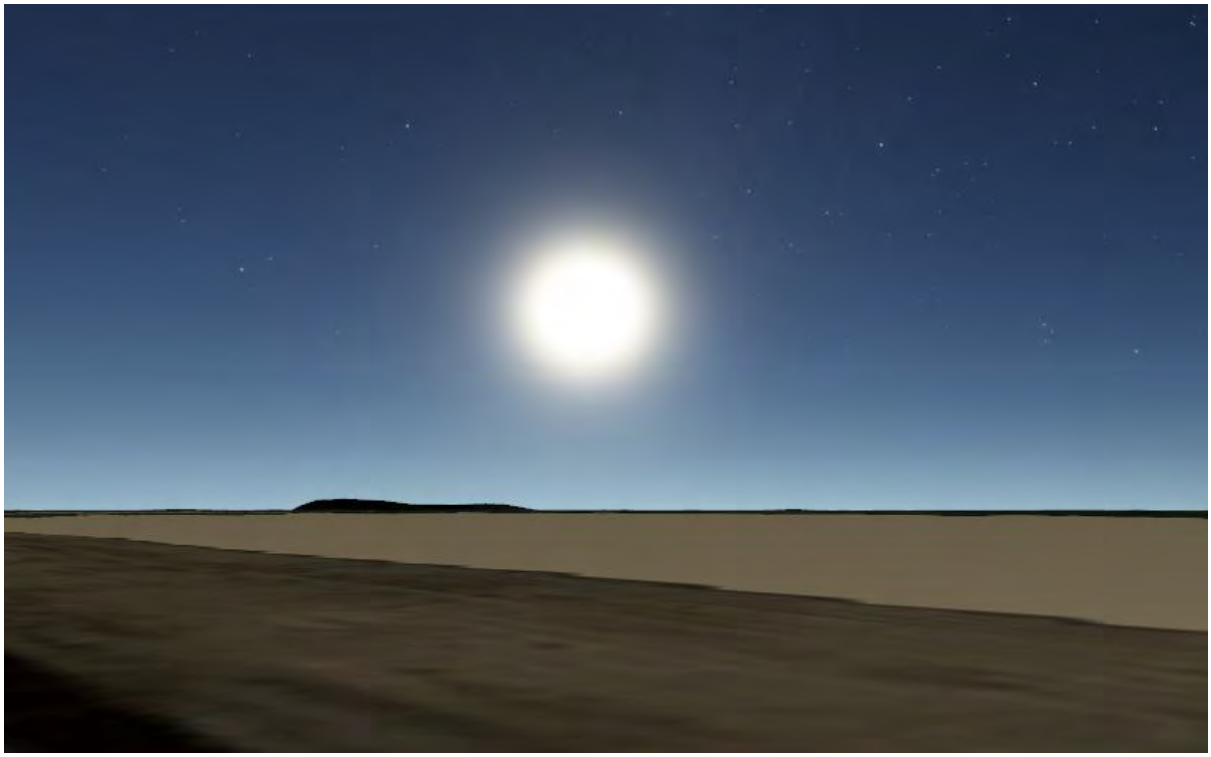


Looking East

April 15th 05:45 UTC



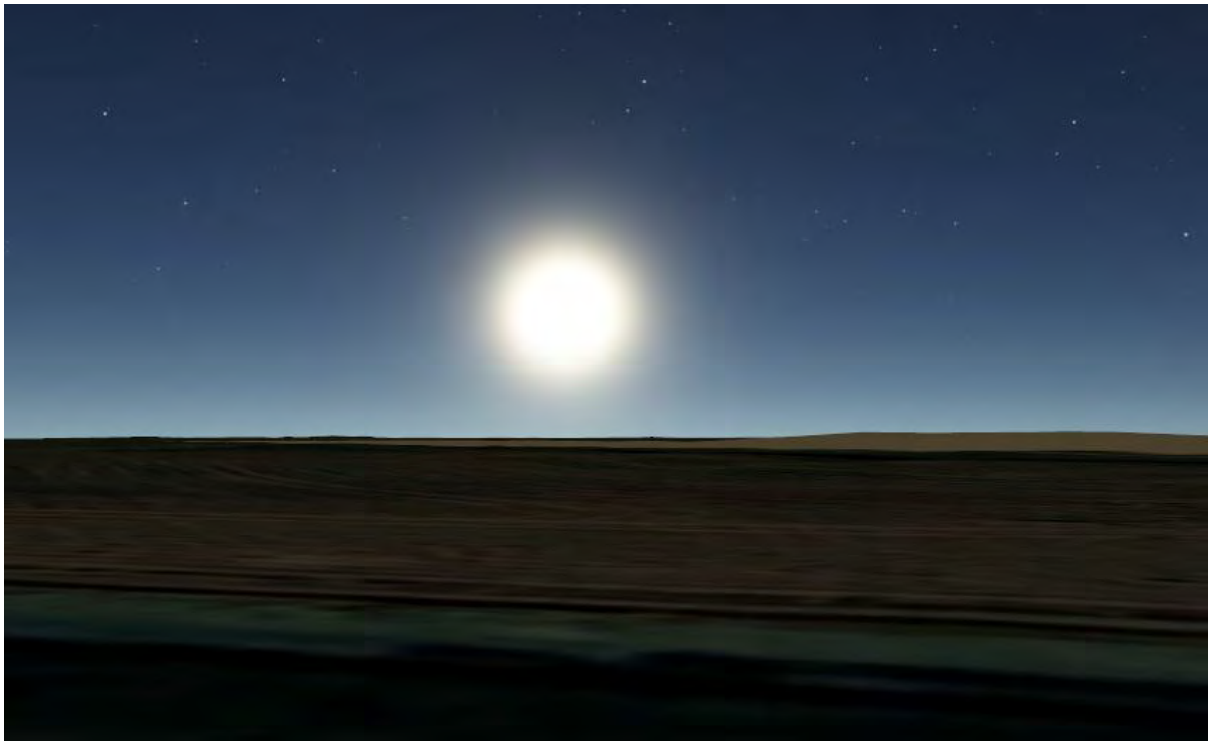
July 1st 05:00 UTC



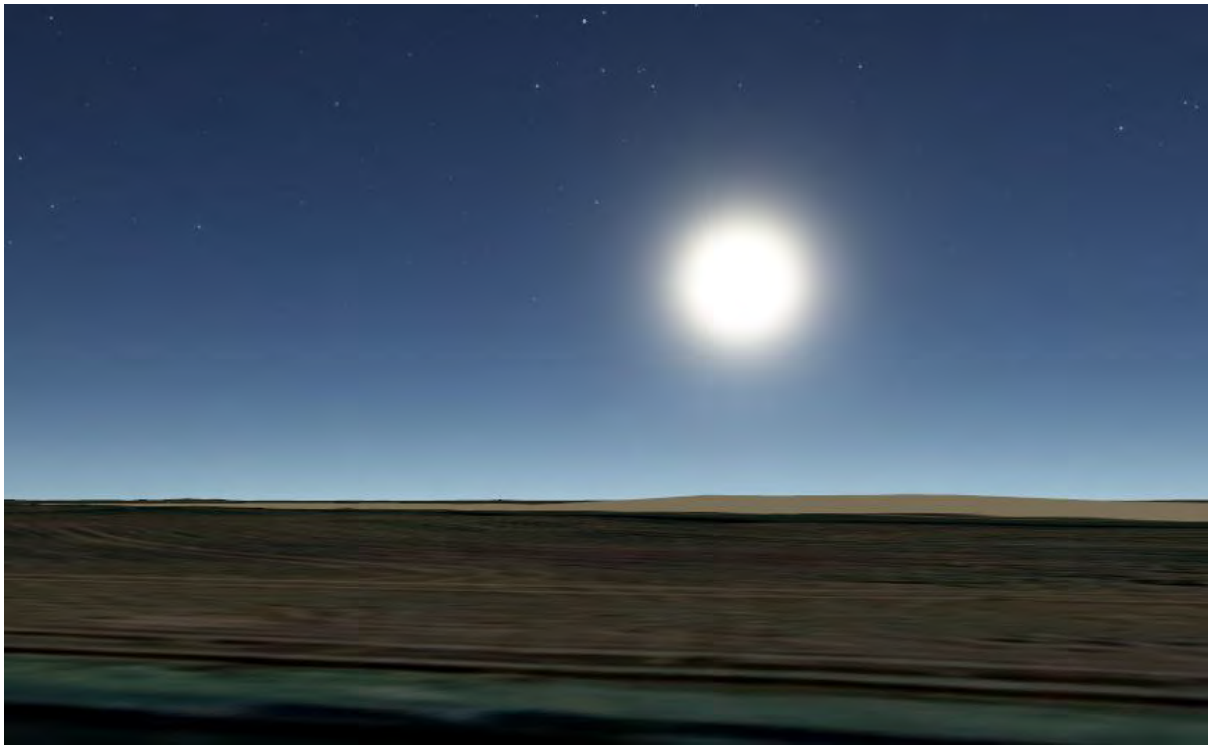
Receptor 64

Looking West

April 15th 18:15 UTC

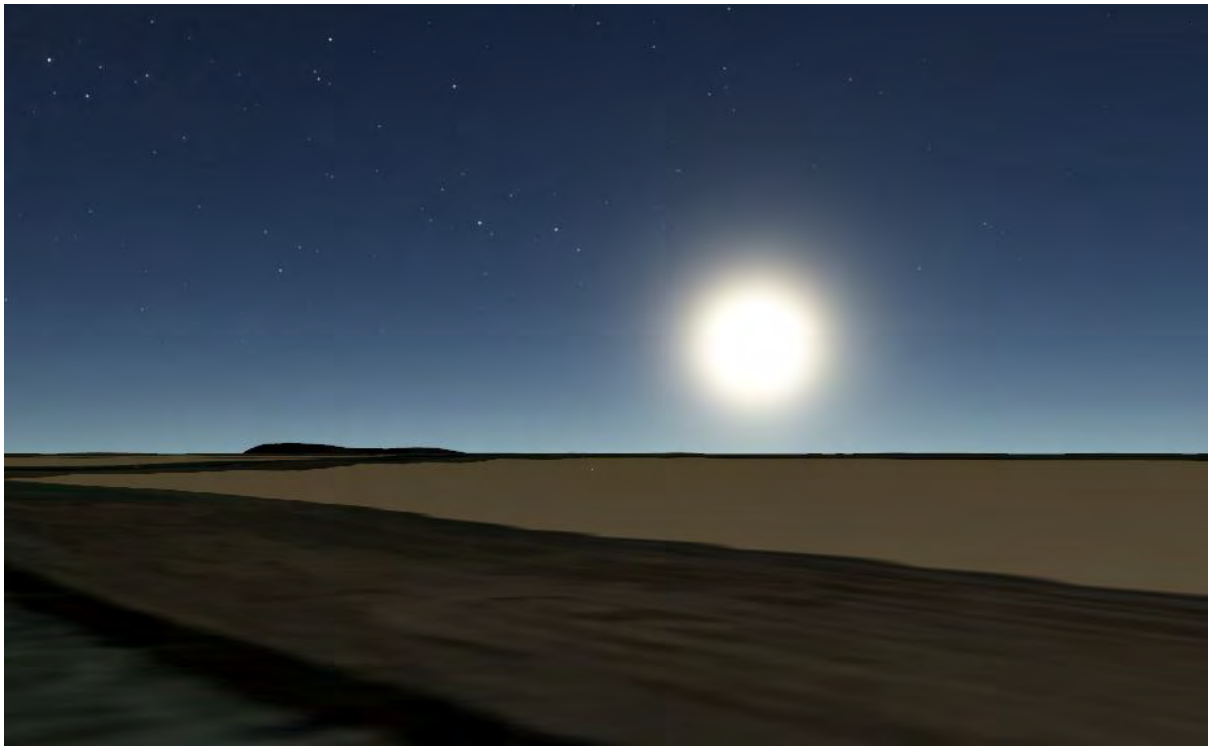


July 1st 19:00 UTC

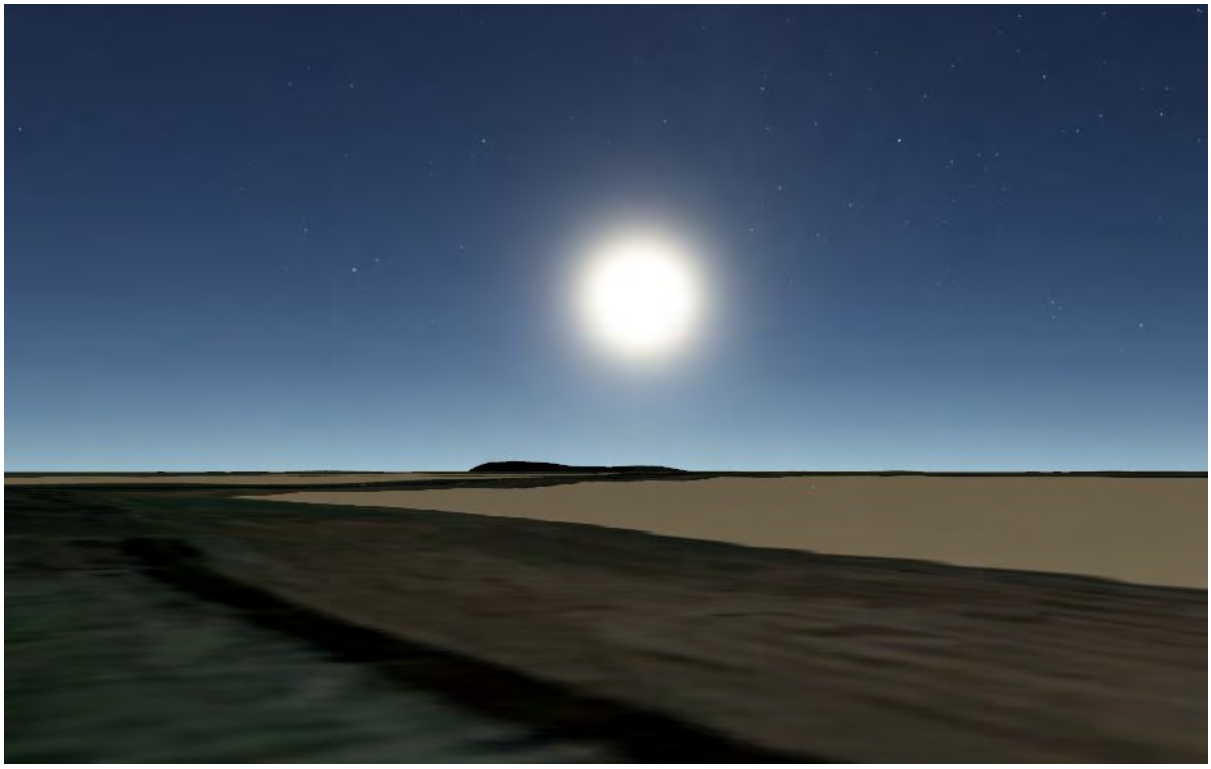


Looking East

April 15th 05:45 UTC



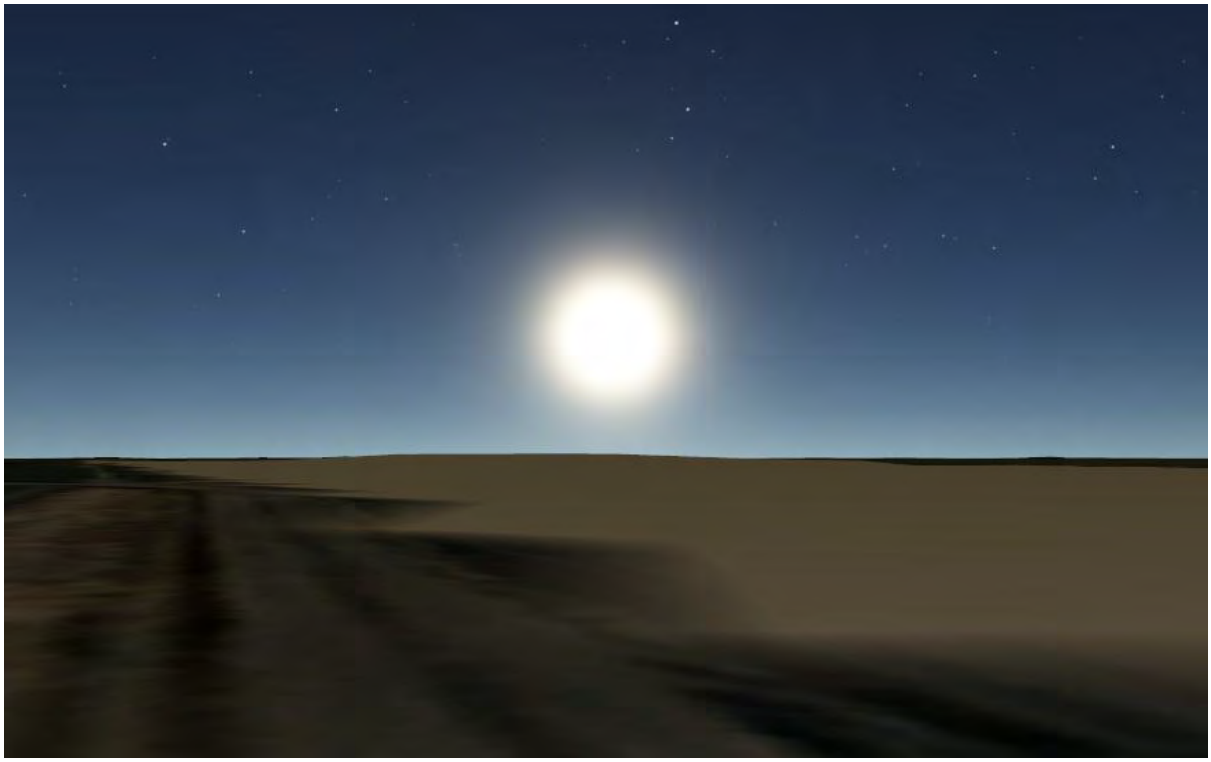
July 1st 05:00 UTC



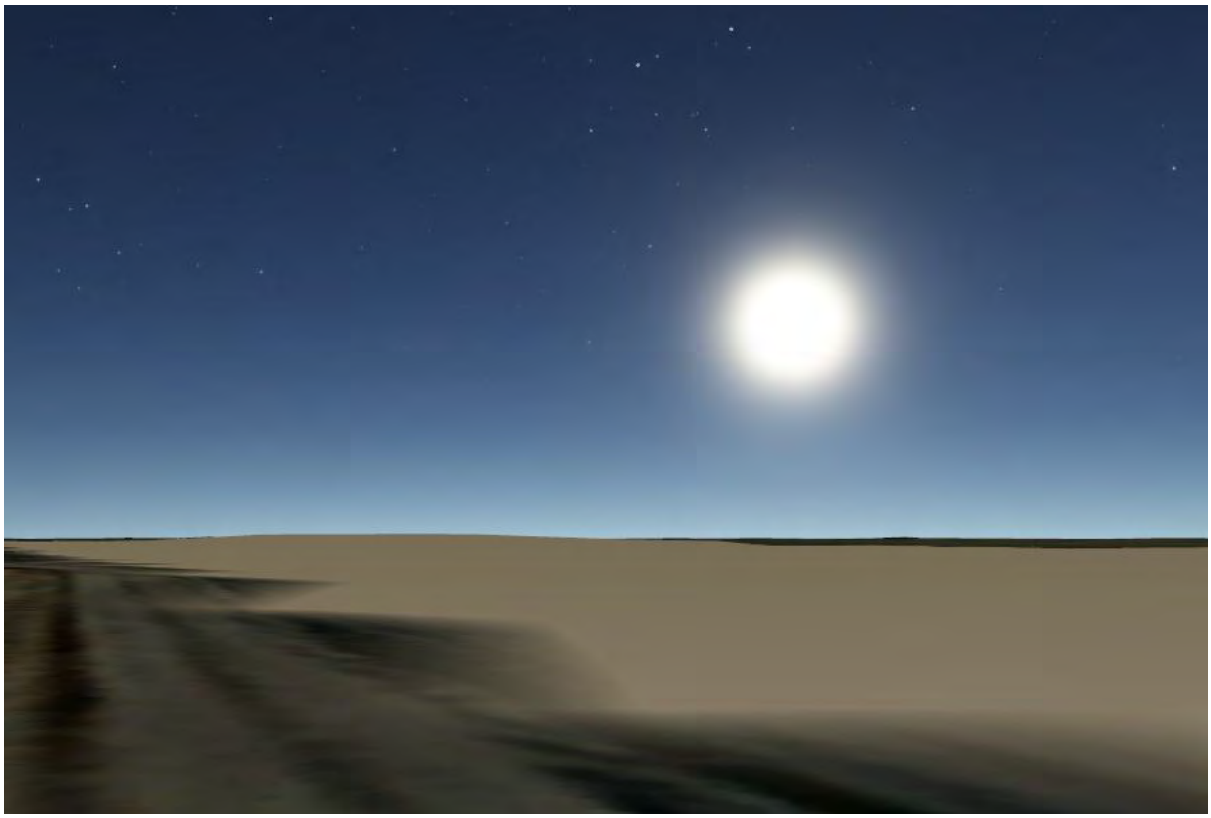
Receptor 65

Looking West

April 15th 18:15 UTC



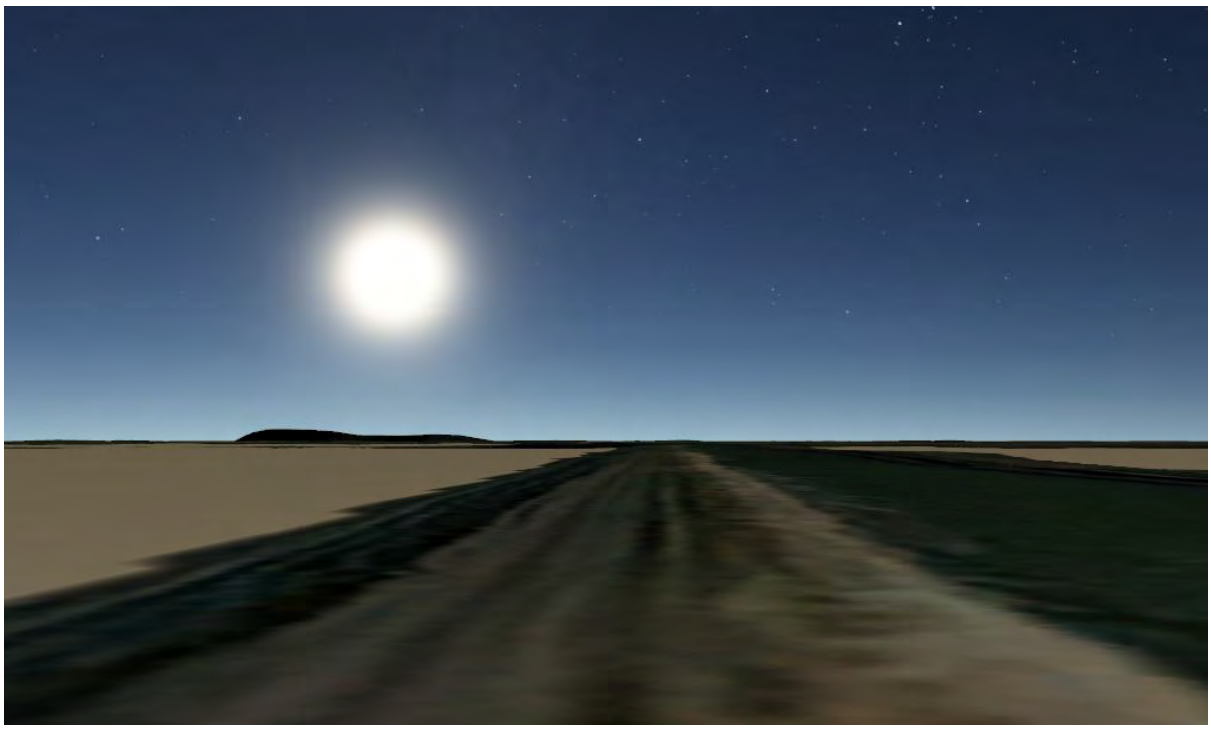
July 1st 19:00 UTC



Looking East

April 15th 05:45 UTC

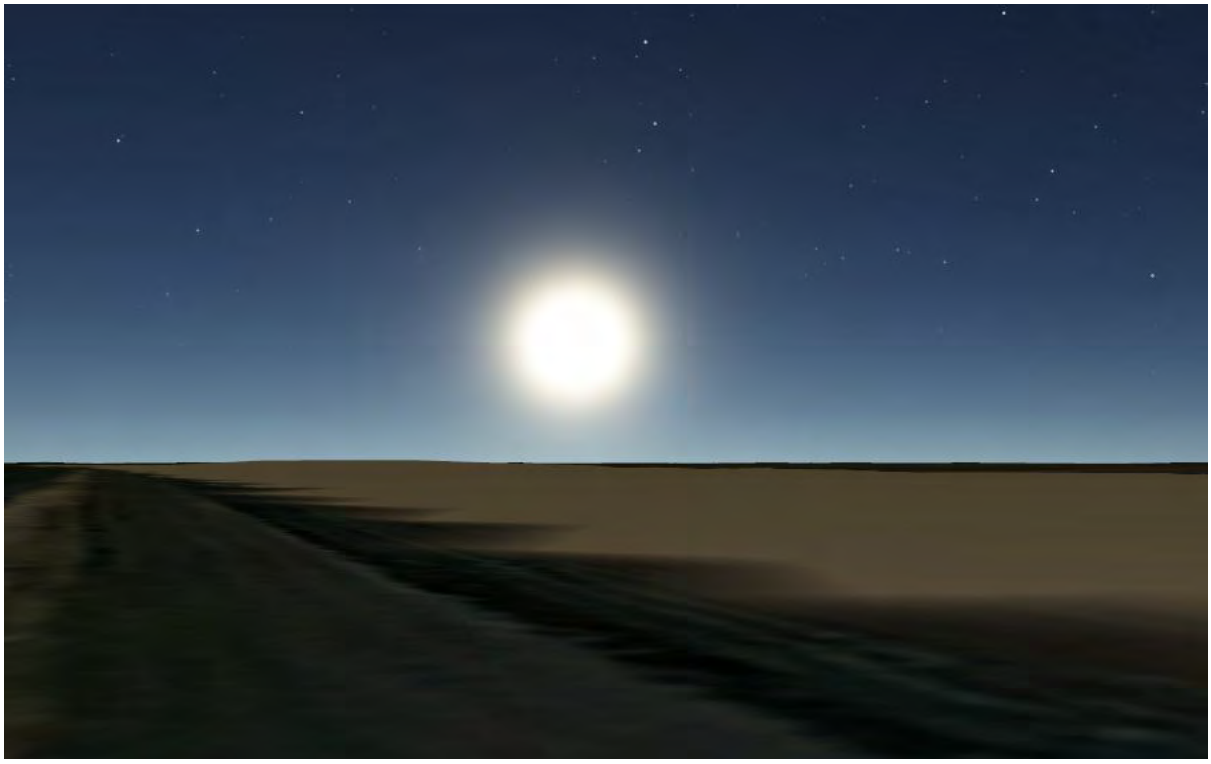
July 1st 05:00 UTC



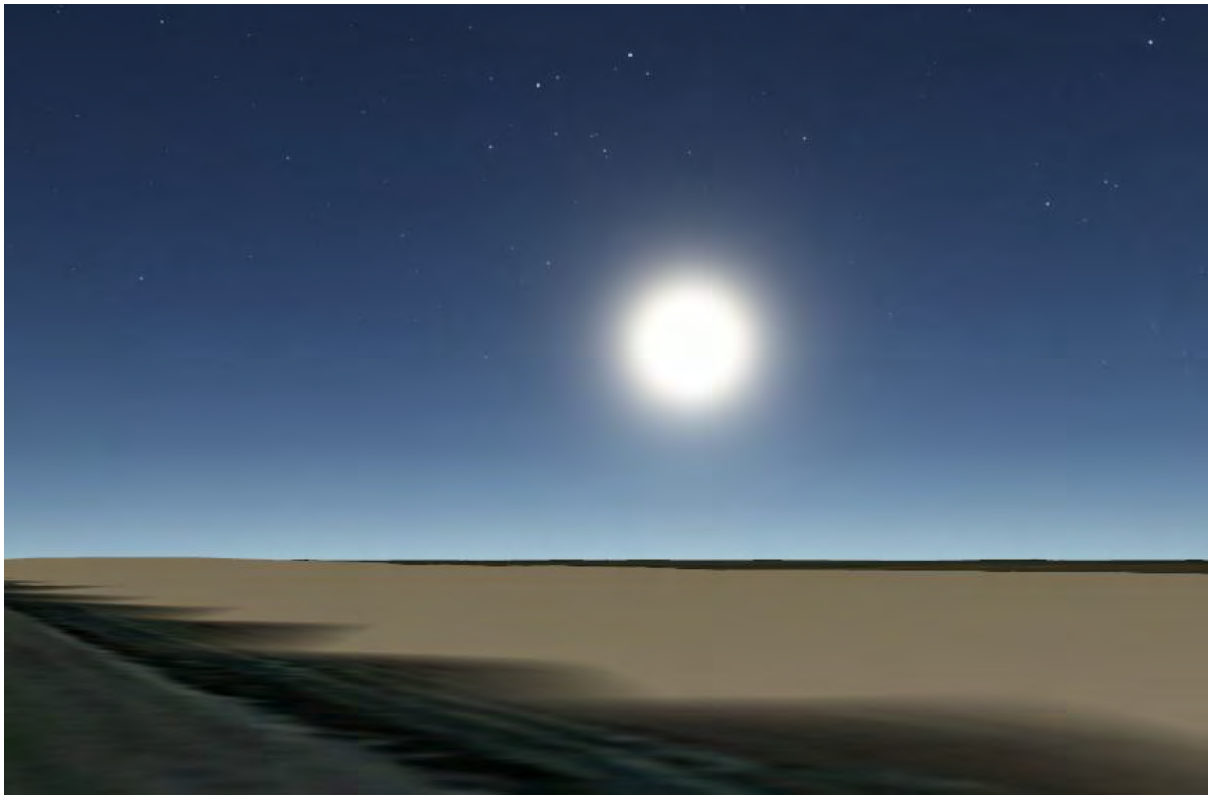
Receptor 66

Looking West

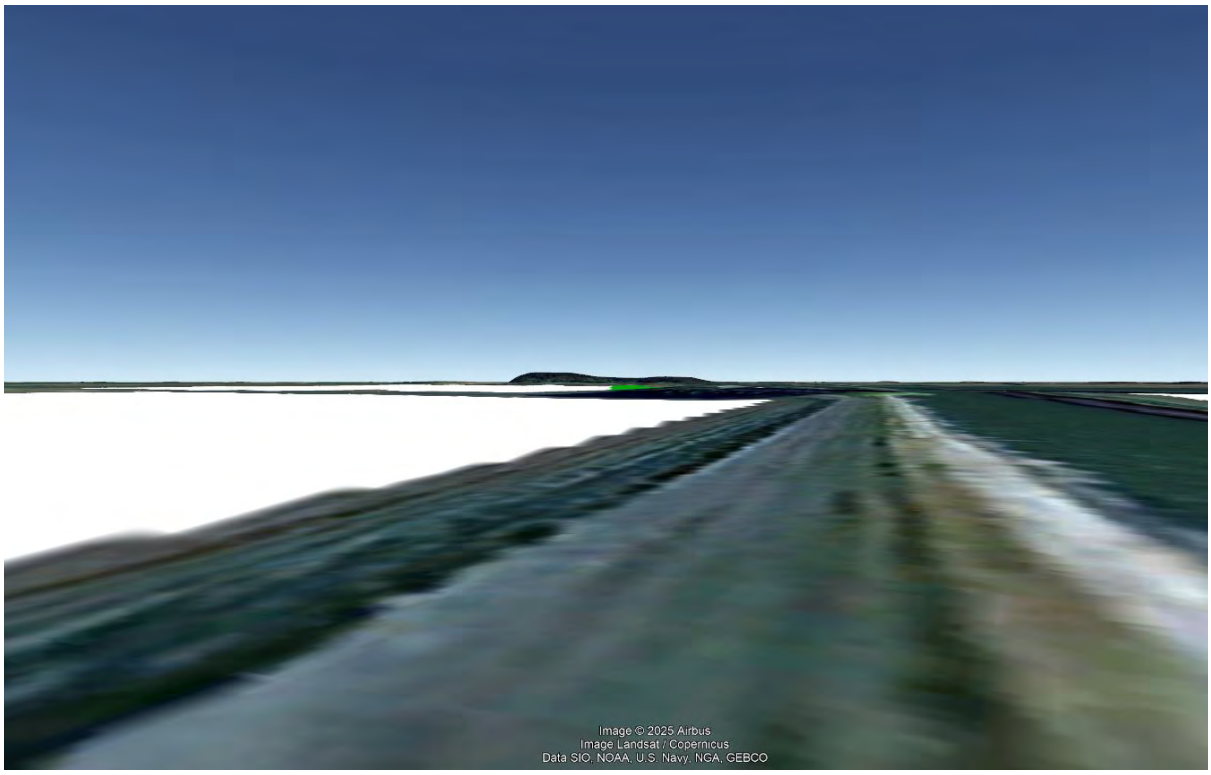
April 15th 18:15 UTC



July 1st 19:00 UTC



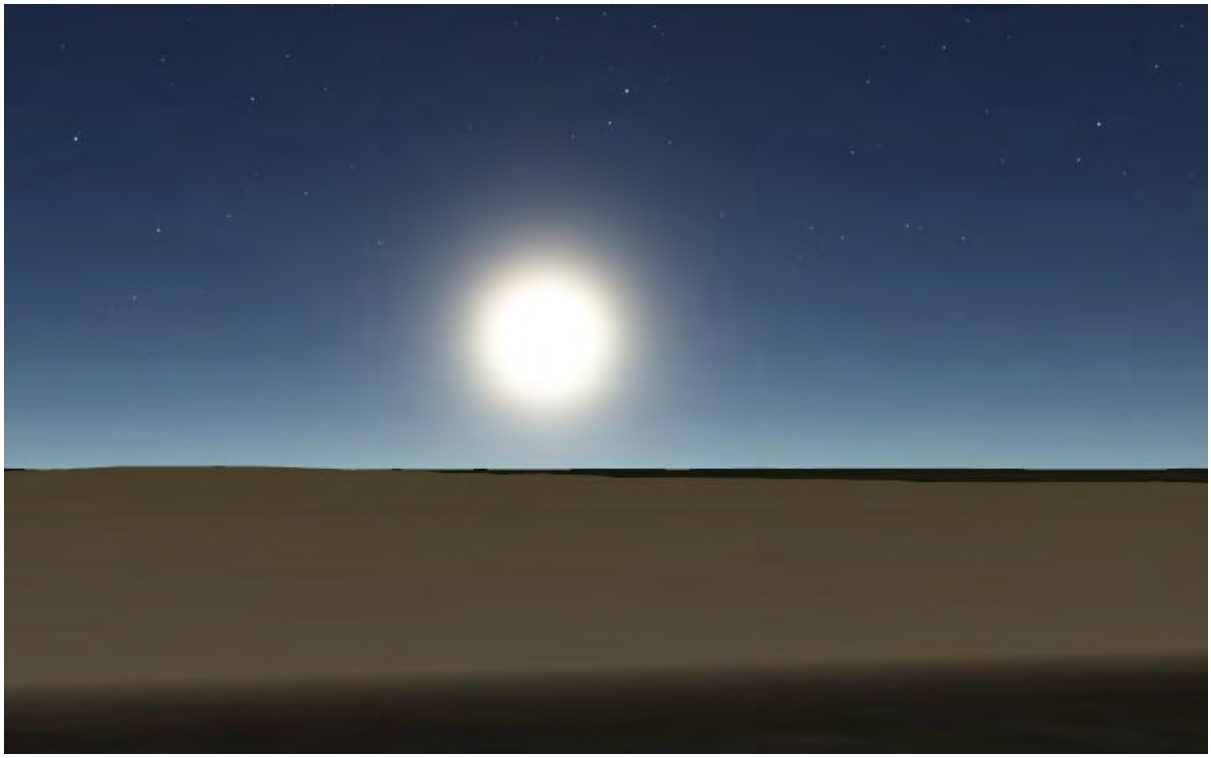
Looking East



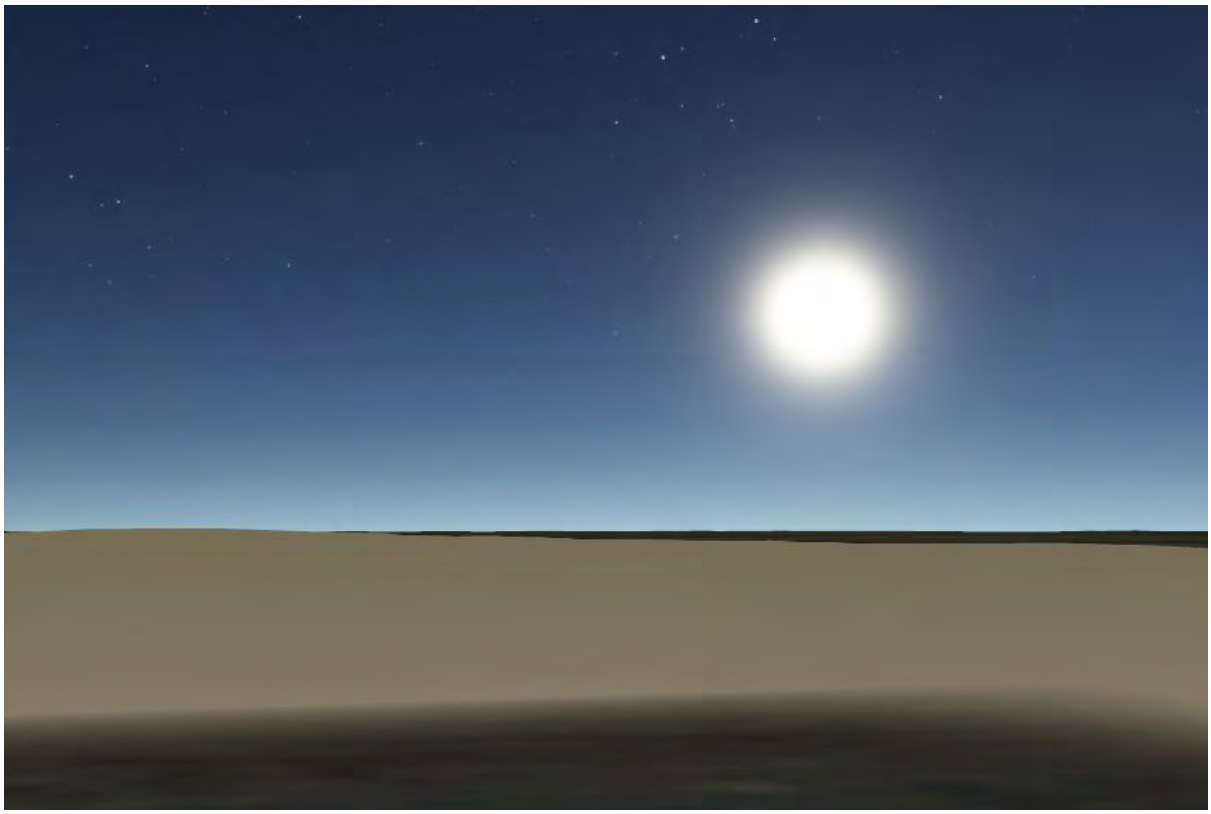
Receptor 67

Looking West

April 15th 18:15 UTC

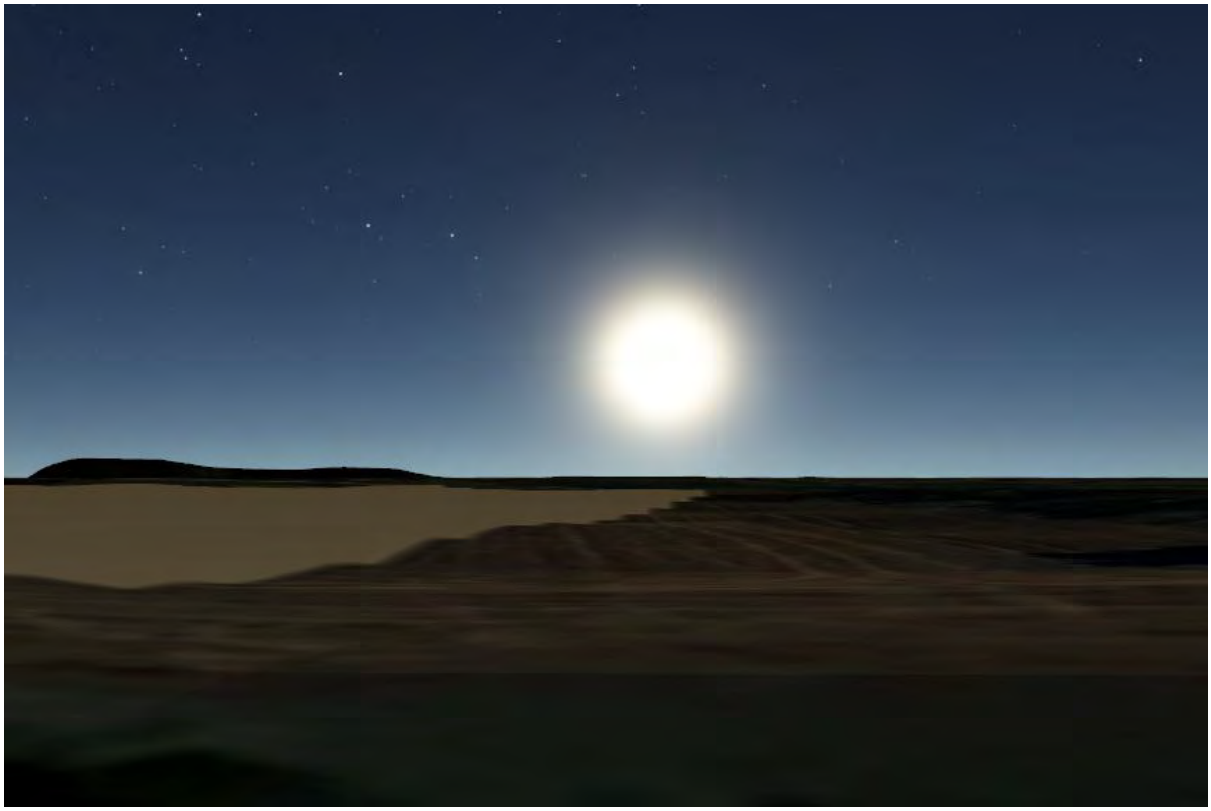


July 1st 19:00 UTC

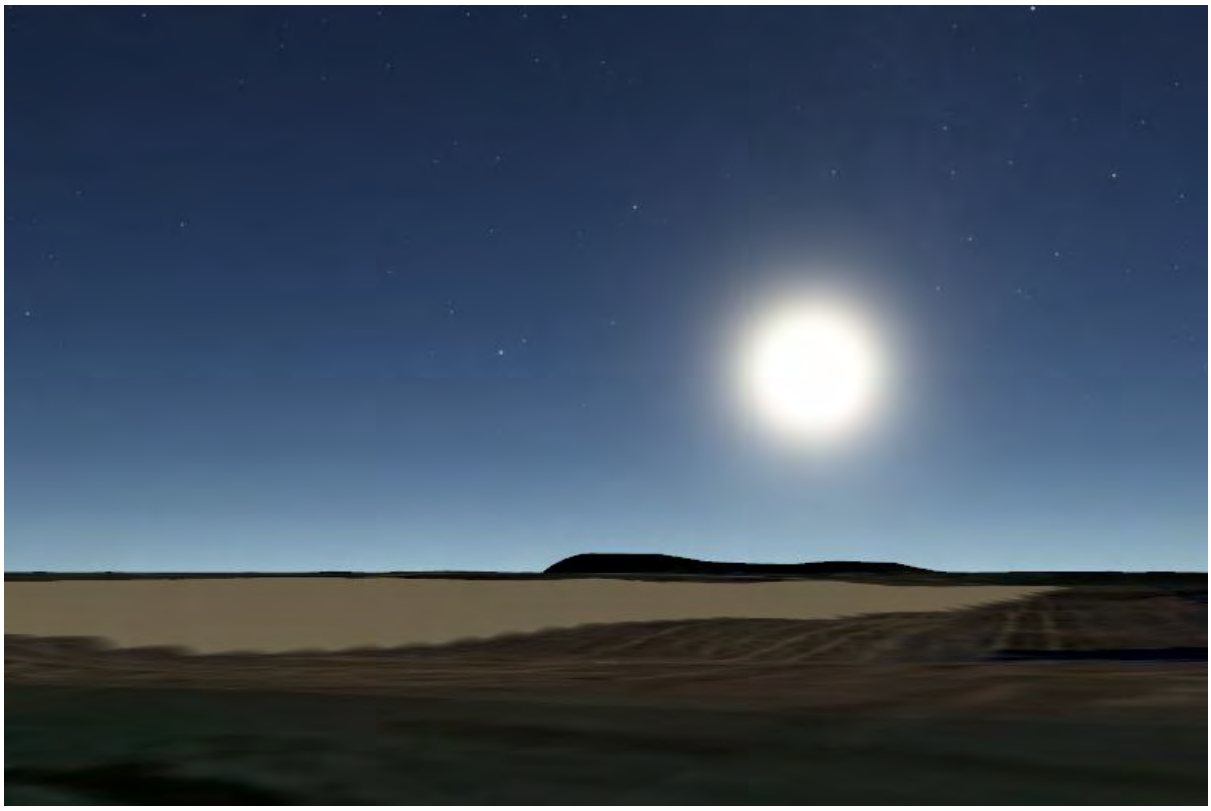


Looking East

April 15th 05:45 UTC

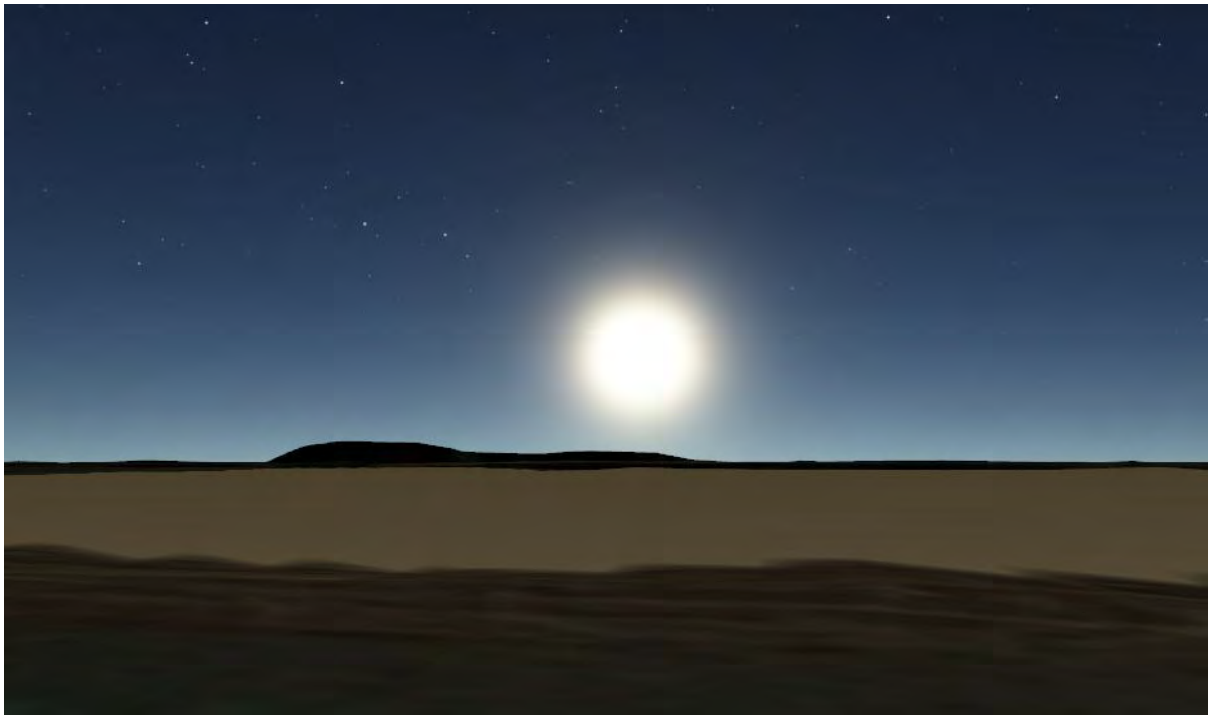


July 1st 05:00 UTC

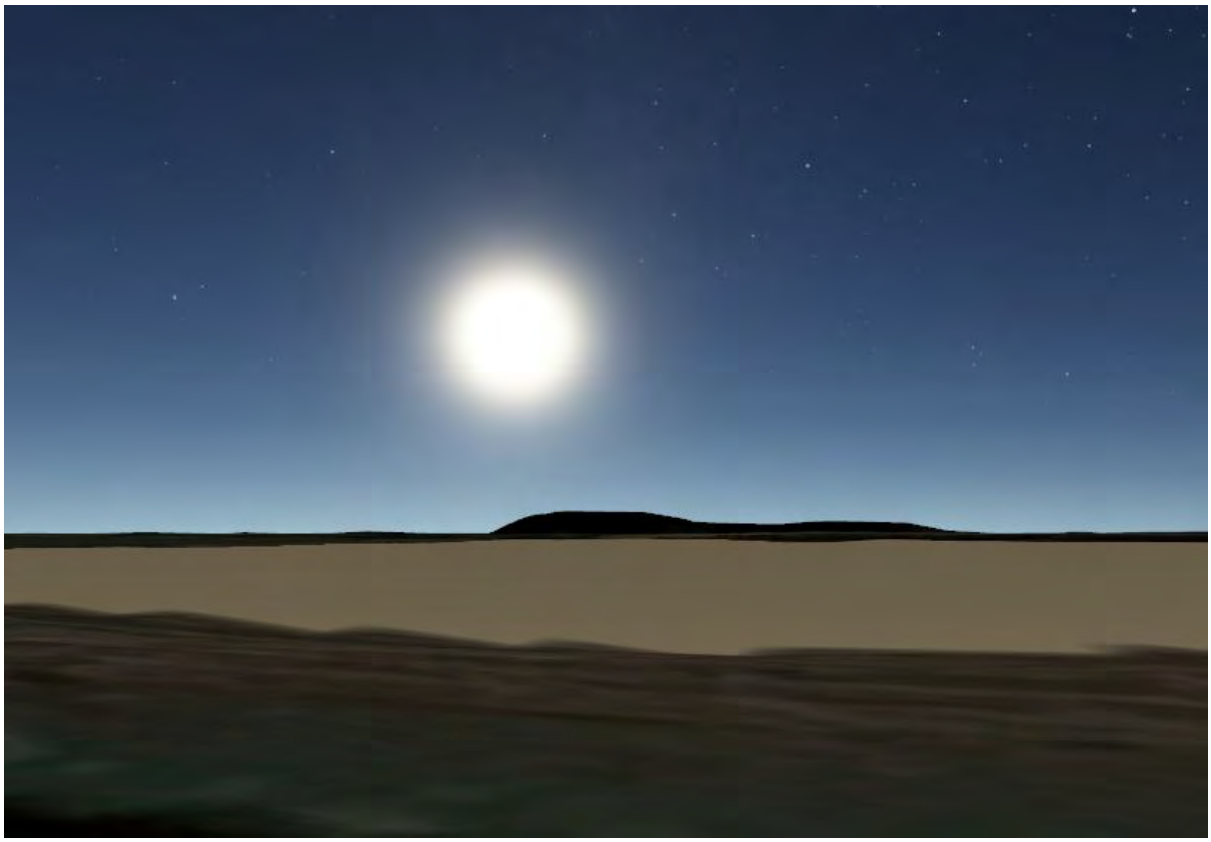


Receptor 68

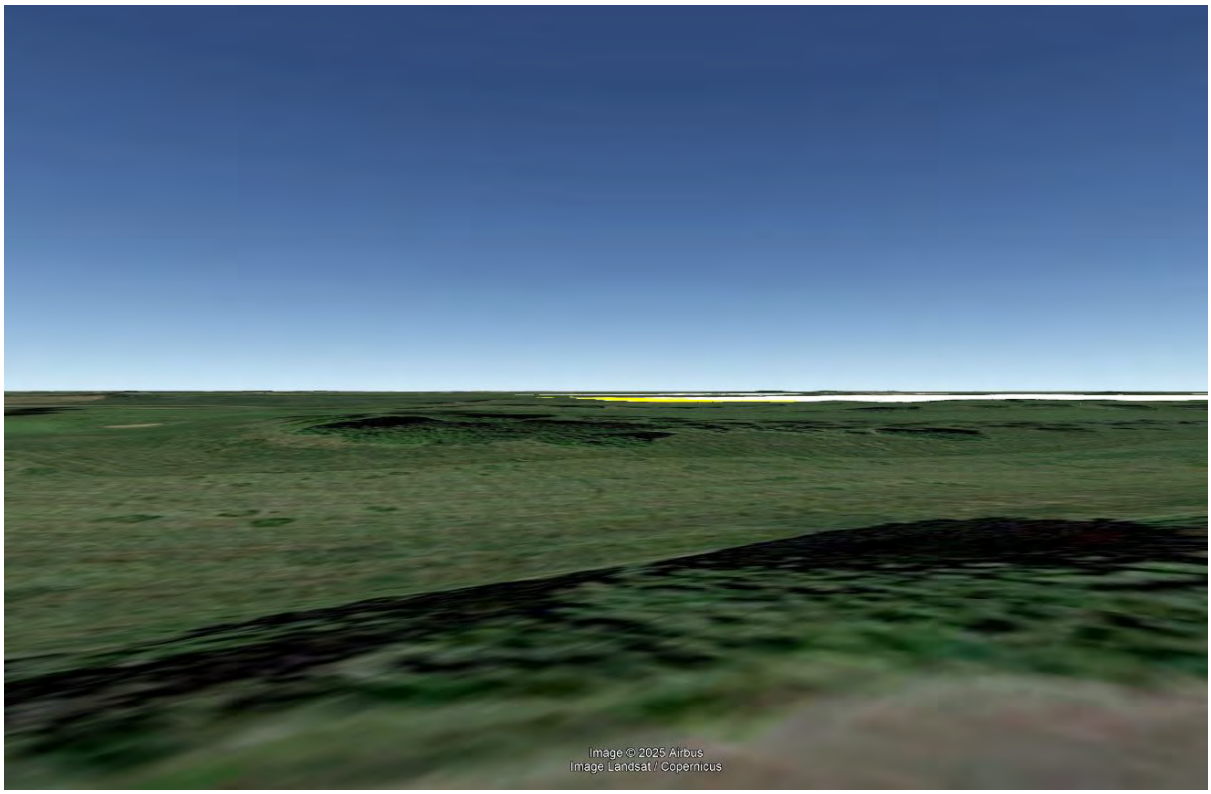
April 15th 05:45 UTC



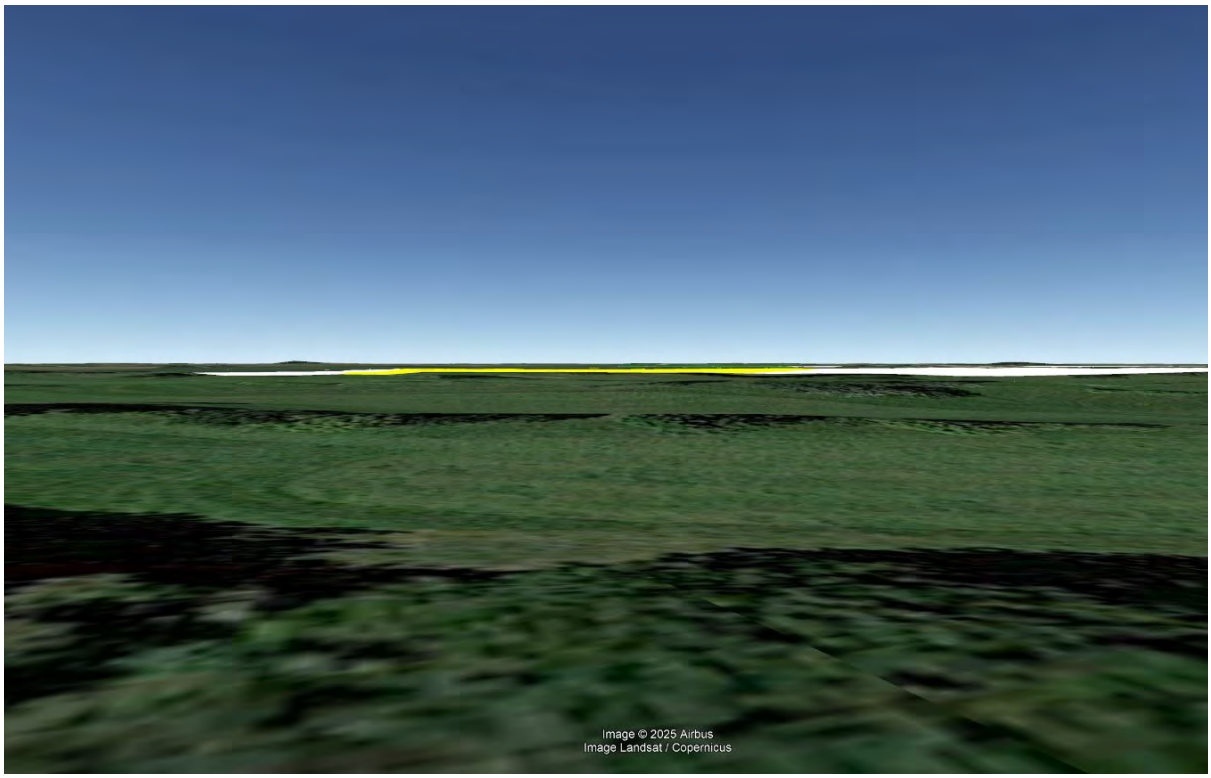
July 1st 05:00 UTC



Receptor 71

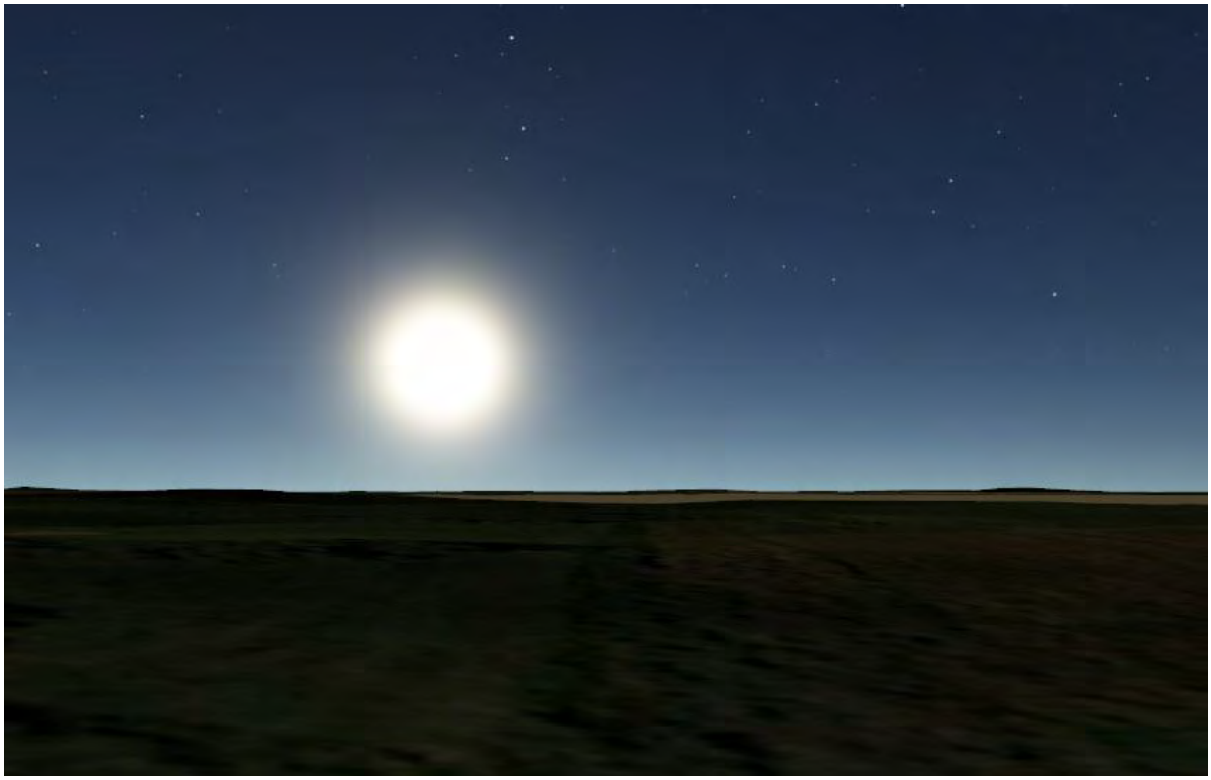


Receptor 72

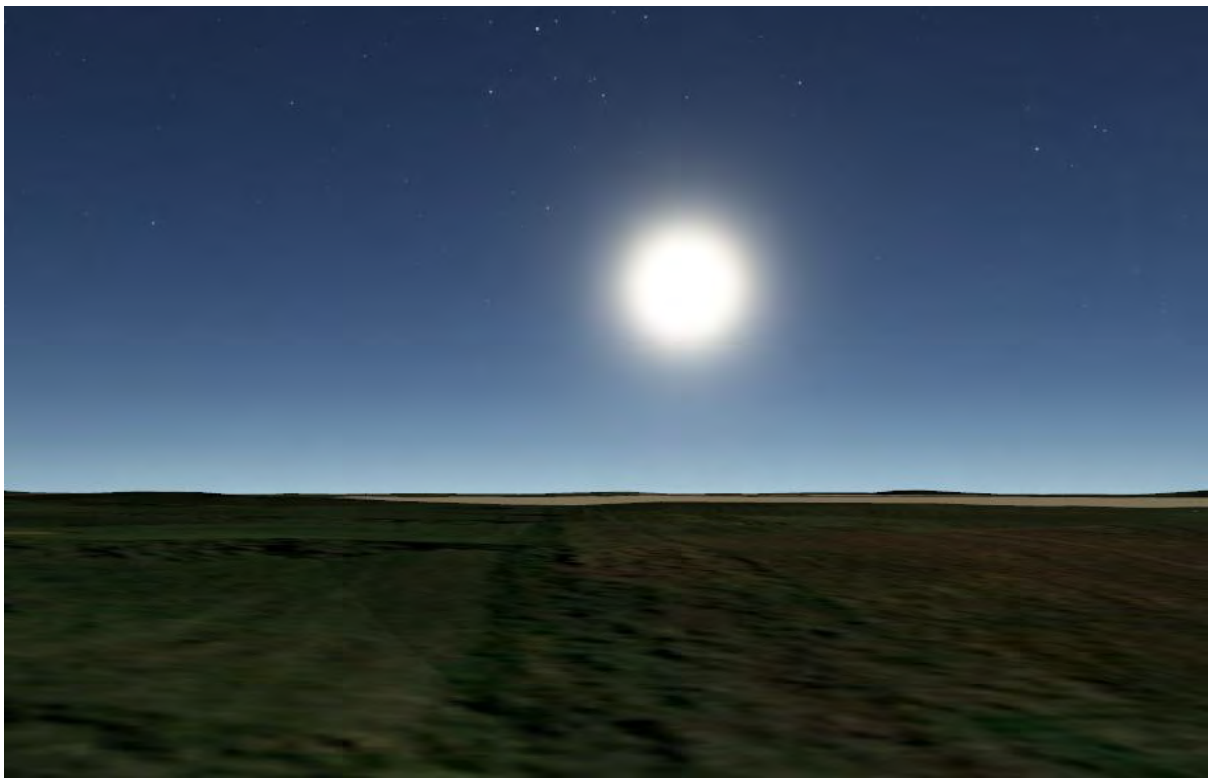


Receptor 73

April 15th 18:15 UTC

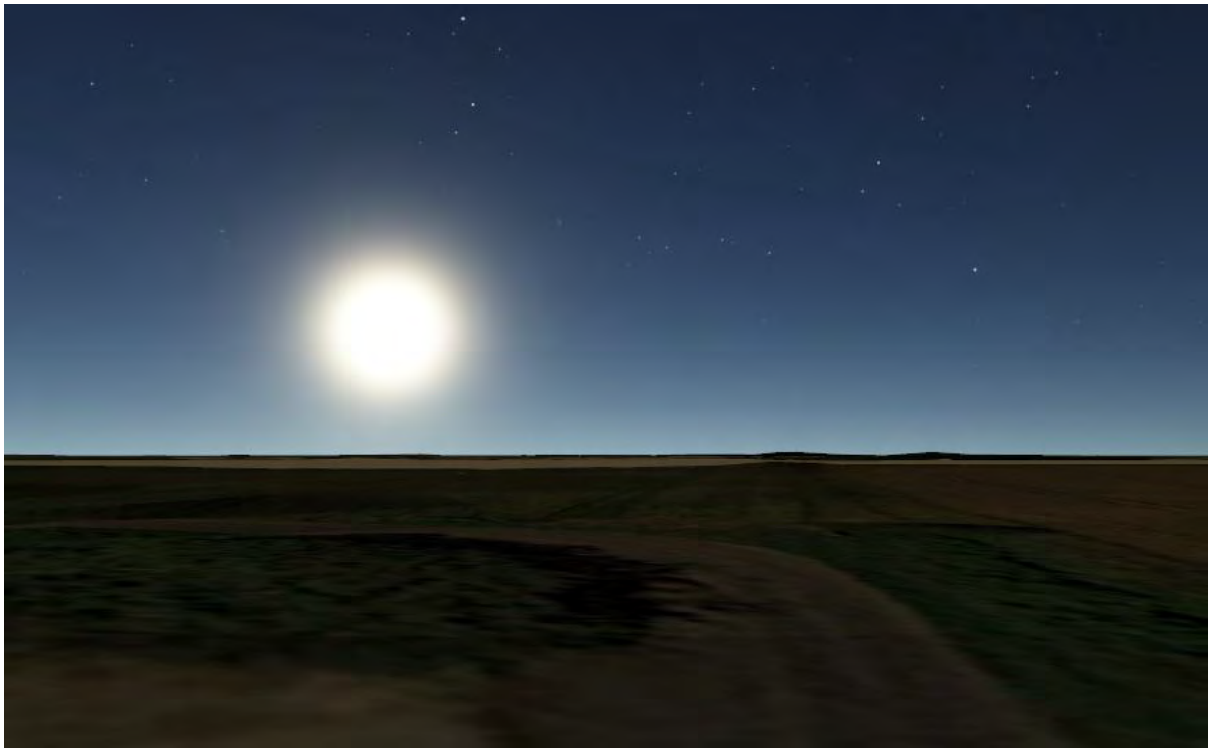


July 1st 19:00 UTC

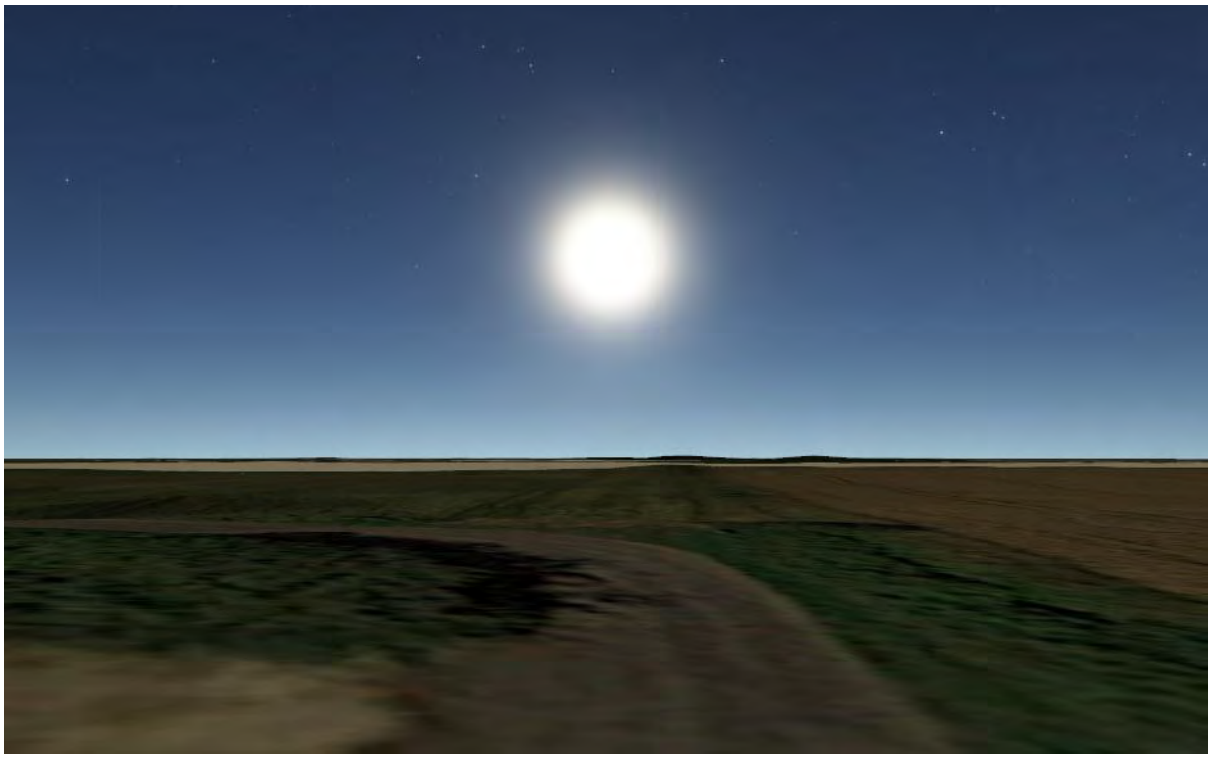


Receptor 74

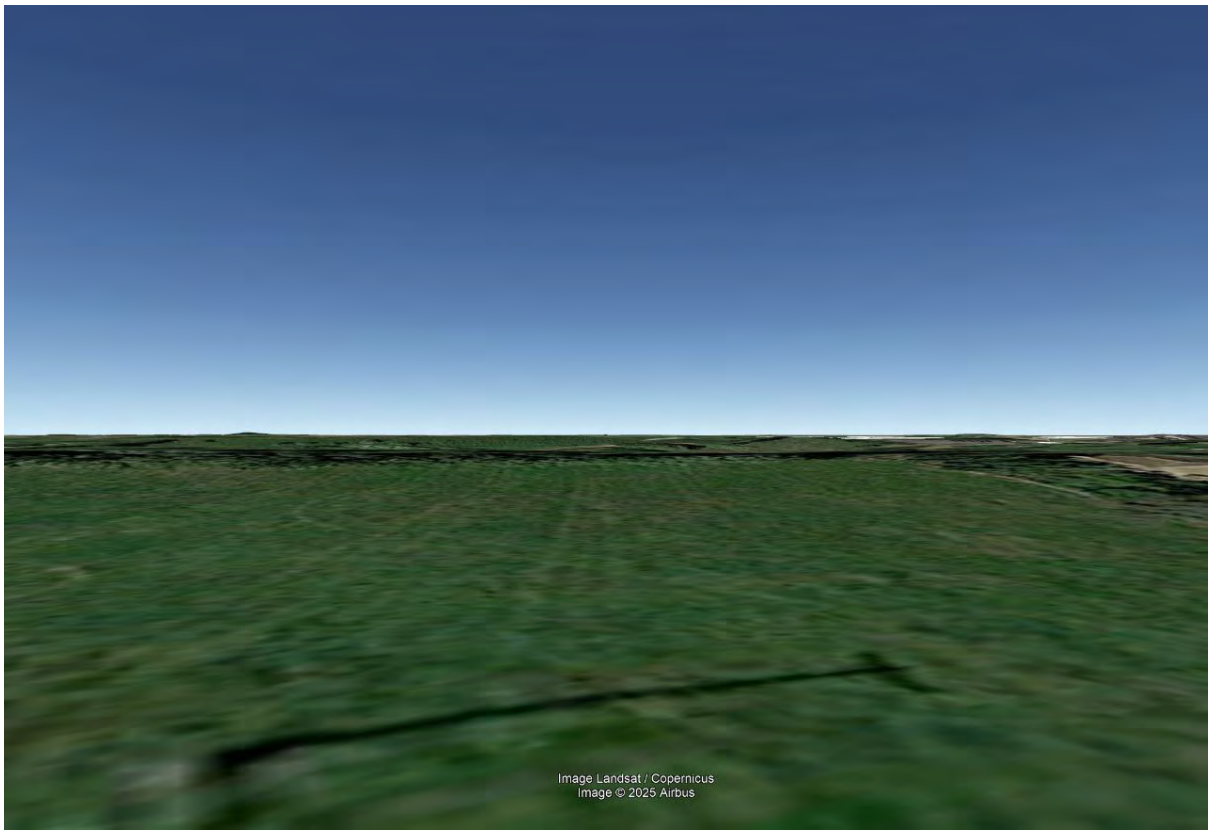
April 15th 18:15 UTC



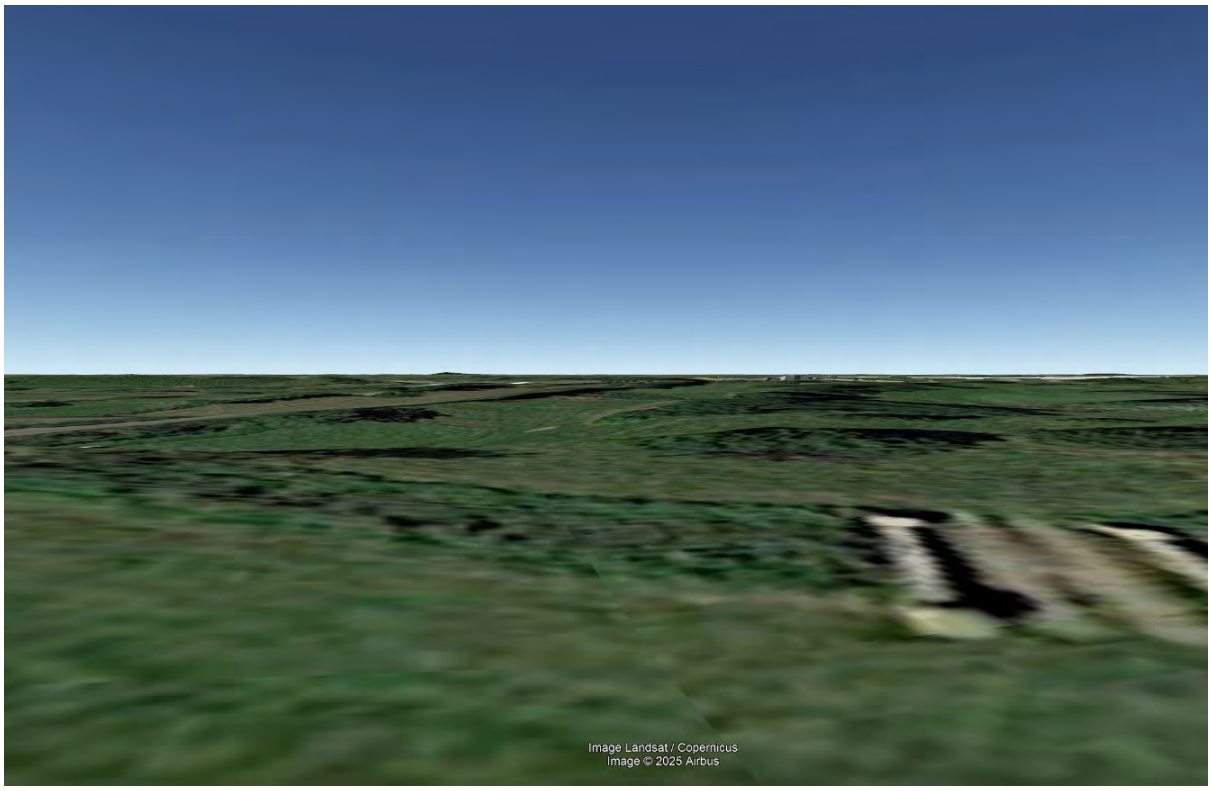
July 1st 19:00 UTC



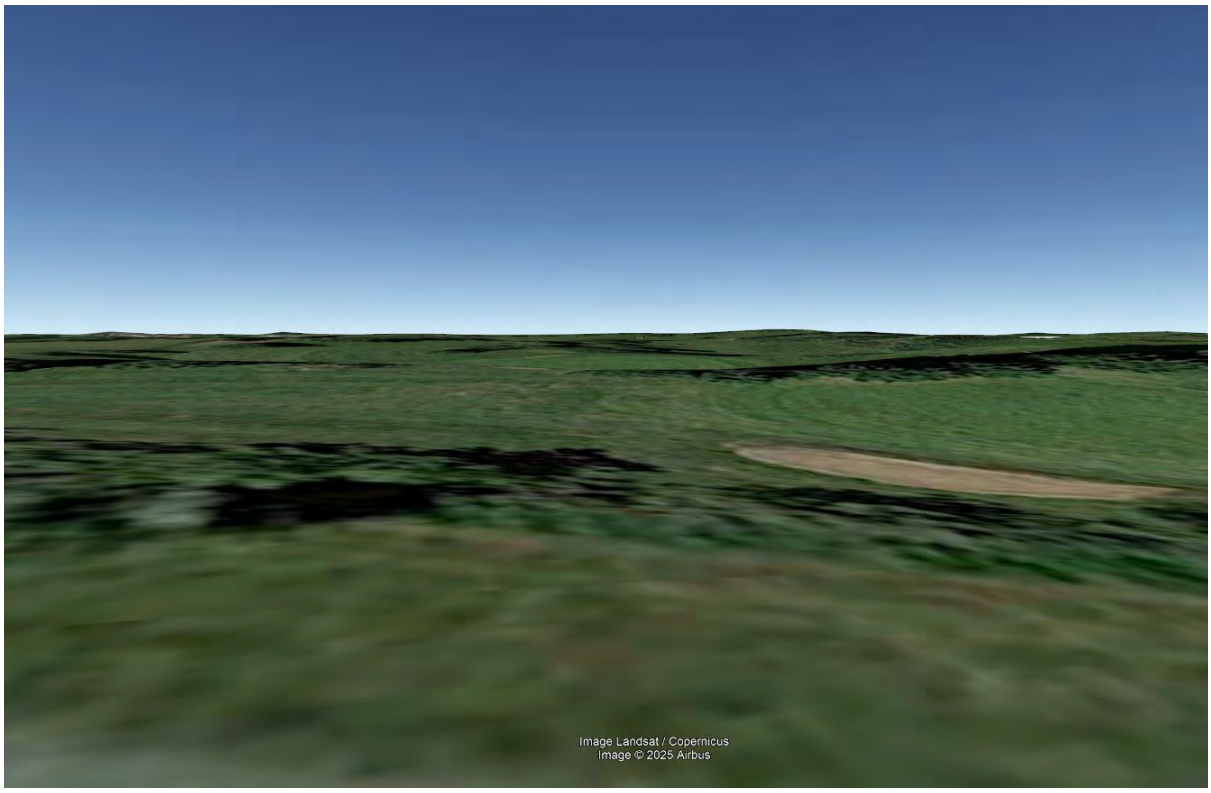
Receptor 76



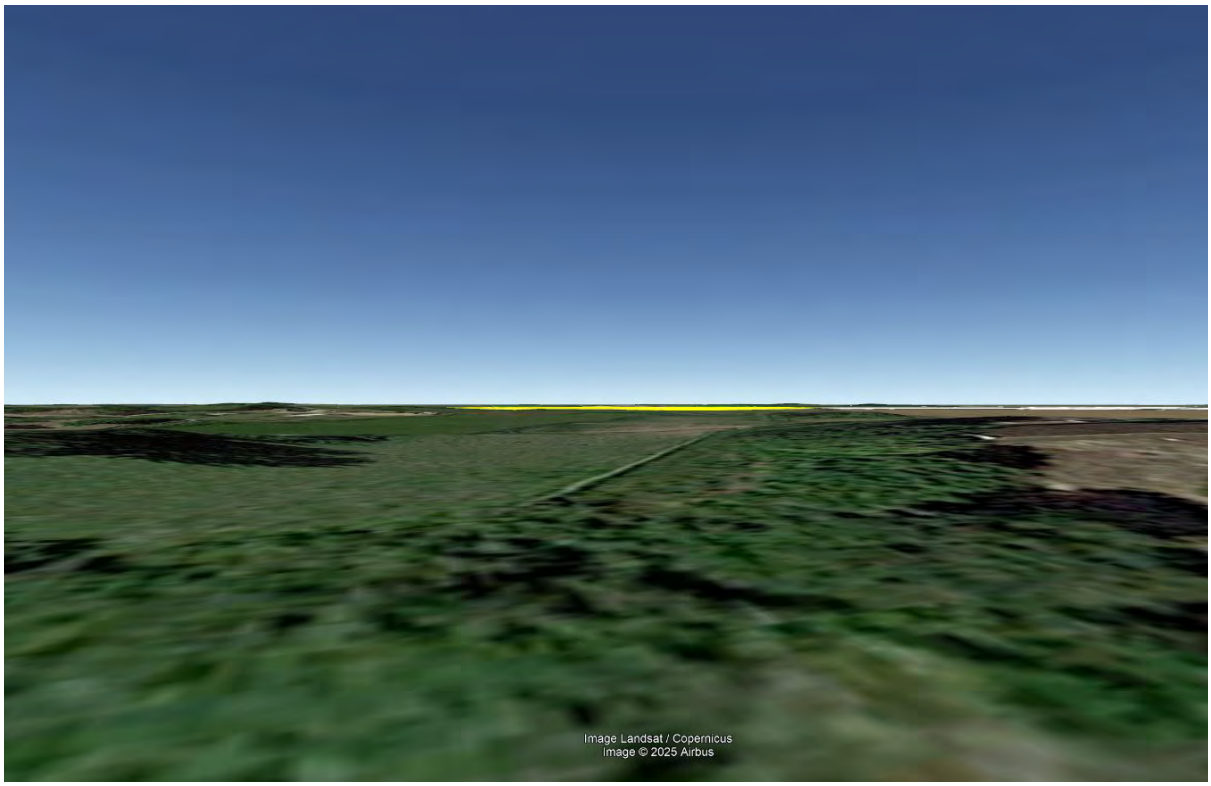
Receptor 77



Receptor 78

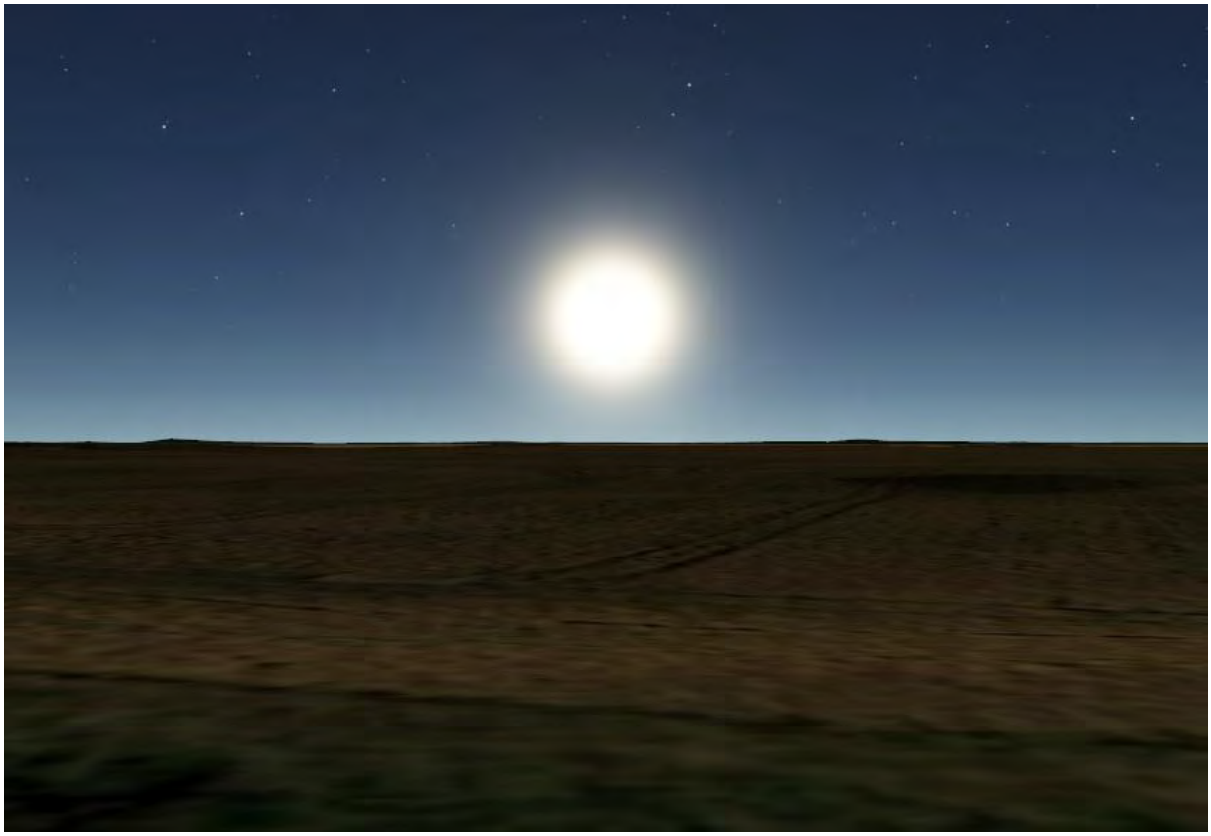


Receptor 79

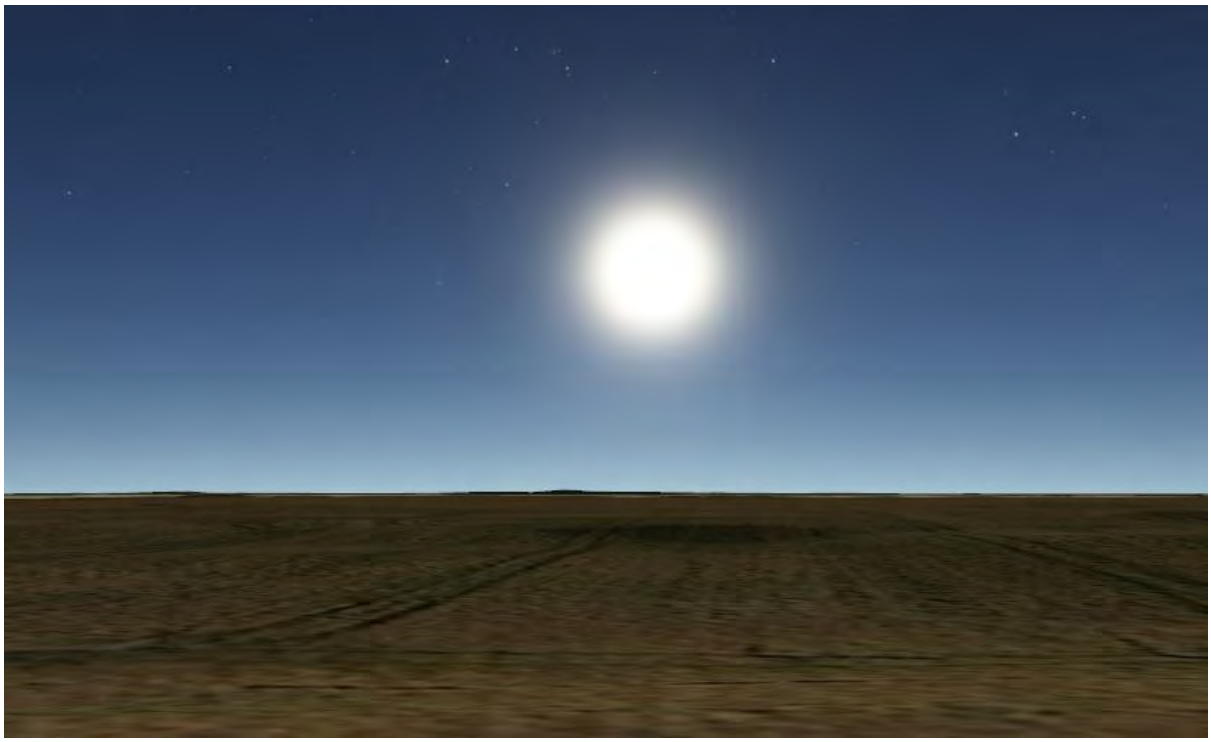


Receptor 80

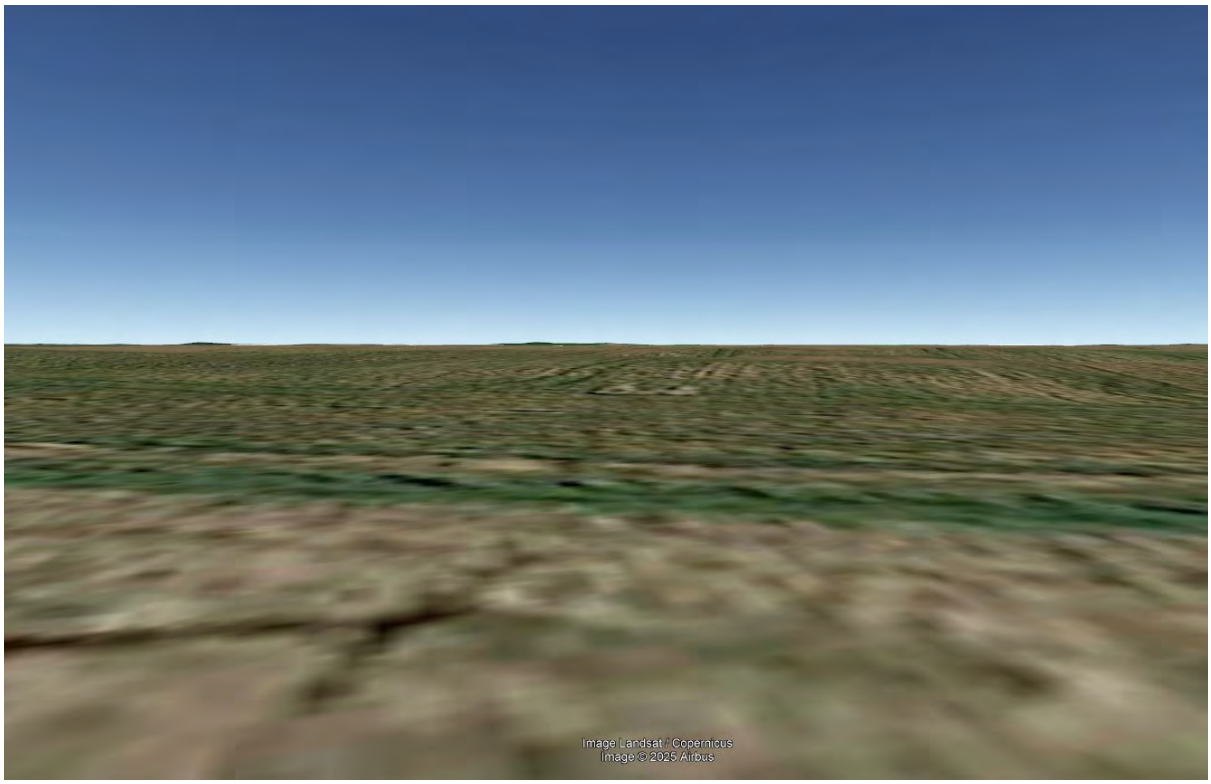
April 15th 18:15 UTC



July 1st 19:00 UTC

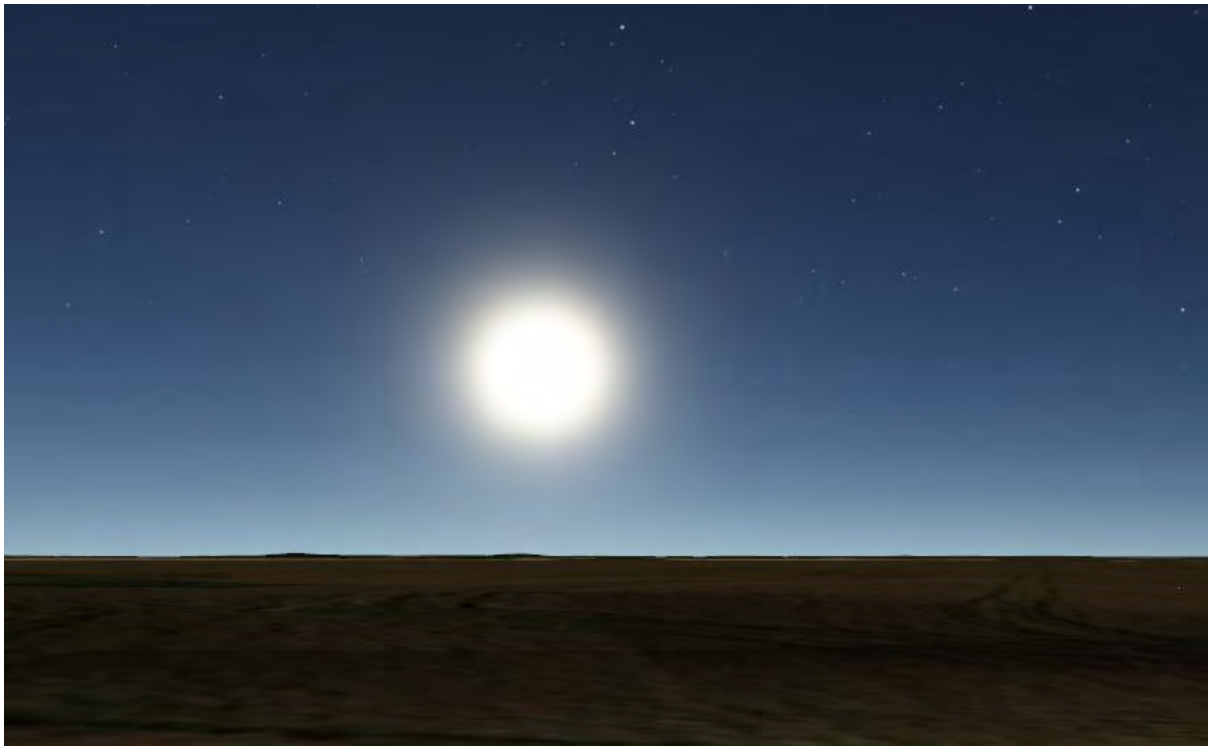


Receptor 81

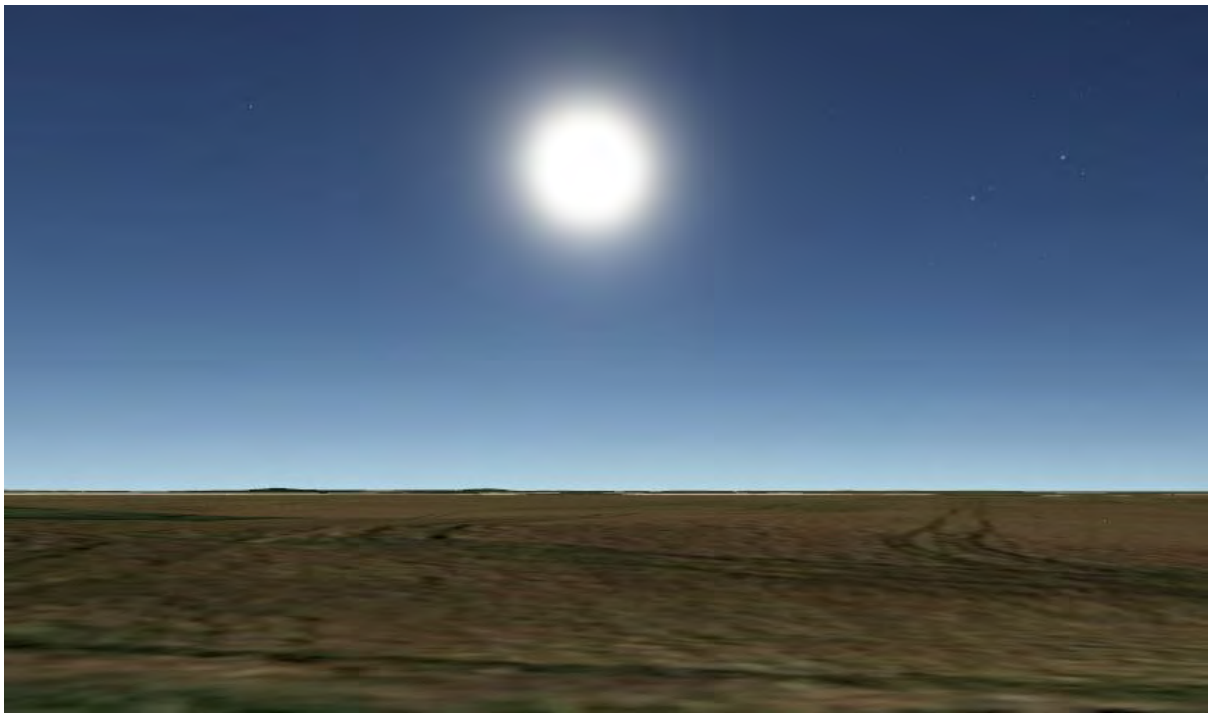


Receptor 82

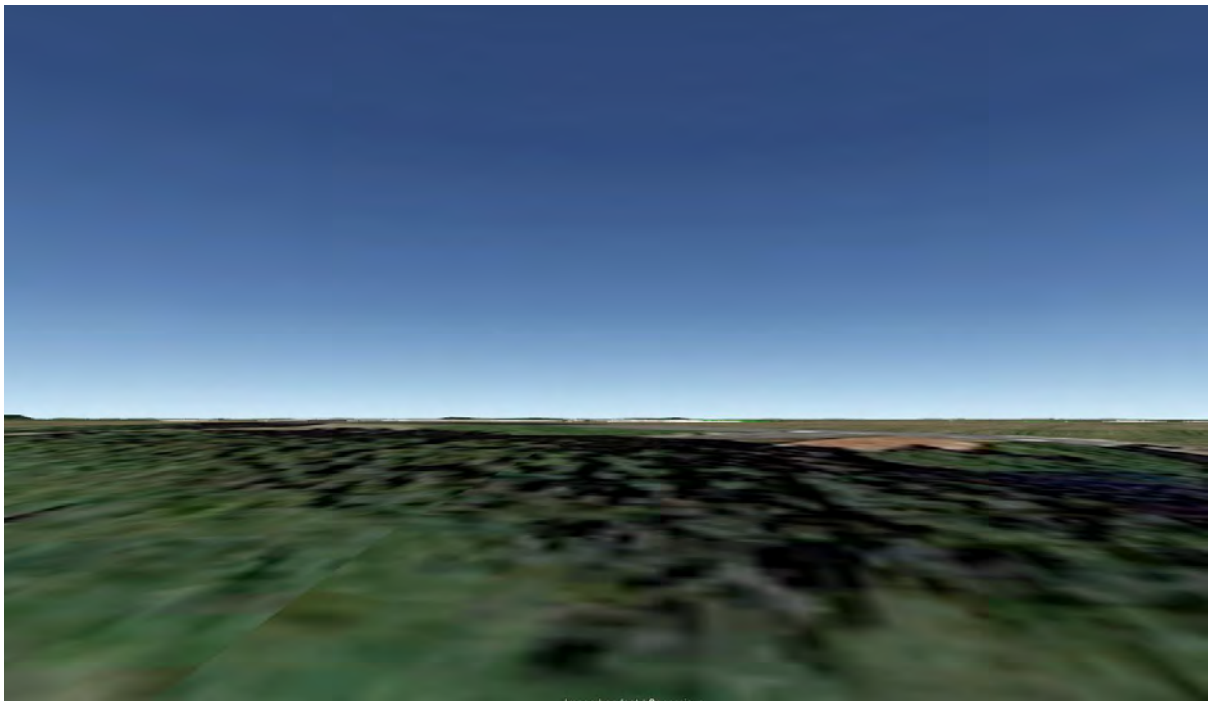
April 15th 18:00 UTC



August 1st 18:00 UTC

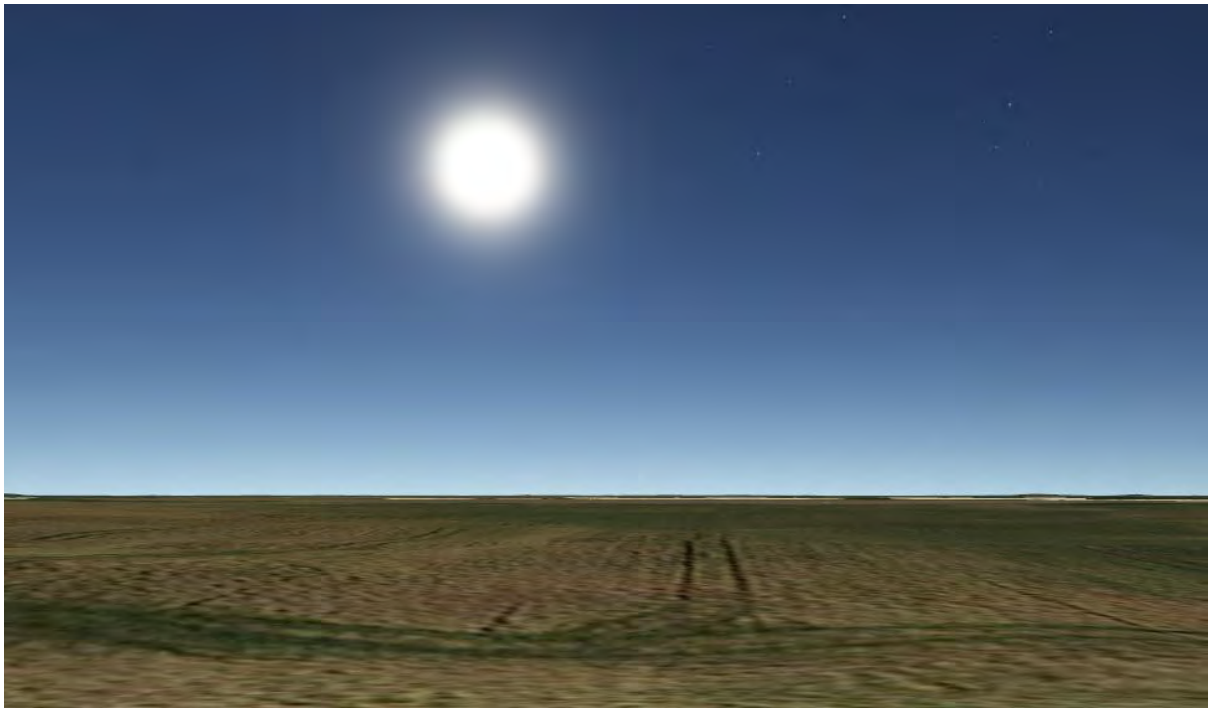


Receptor 83

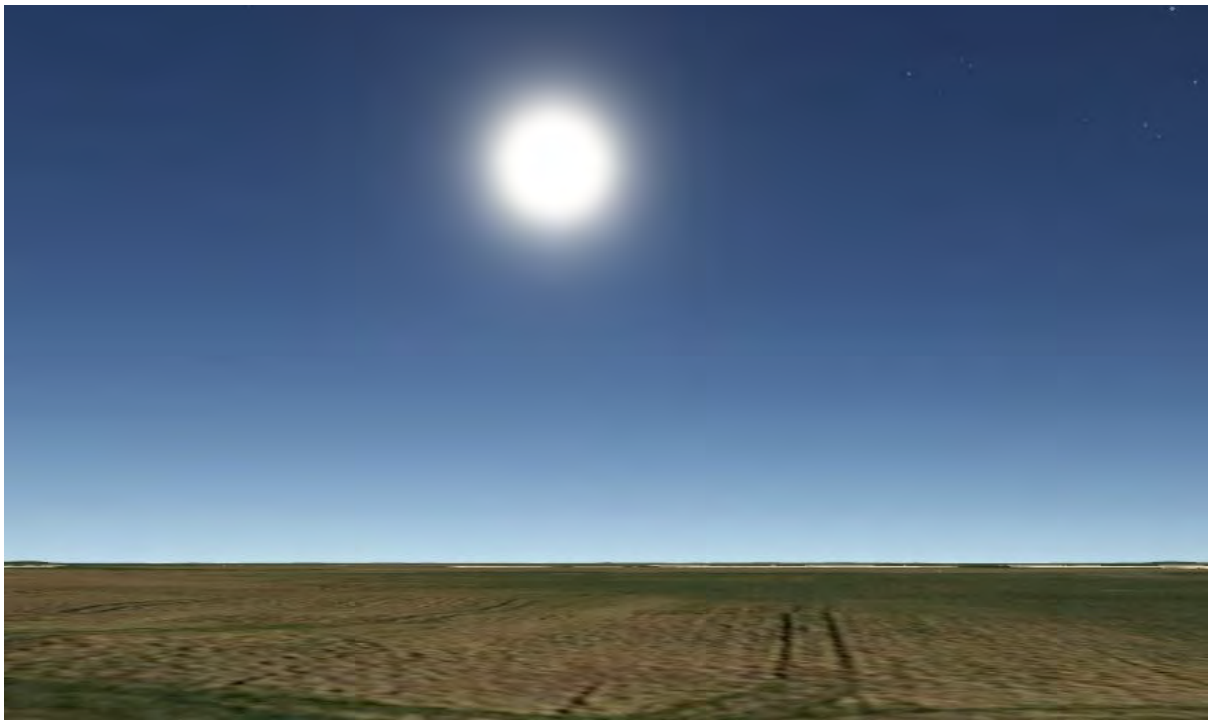


Receptor 84

June 1st 18:00 UTC

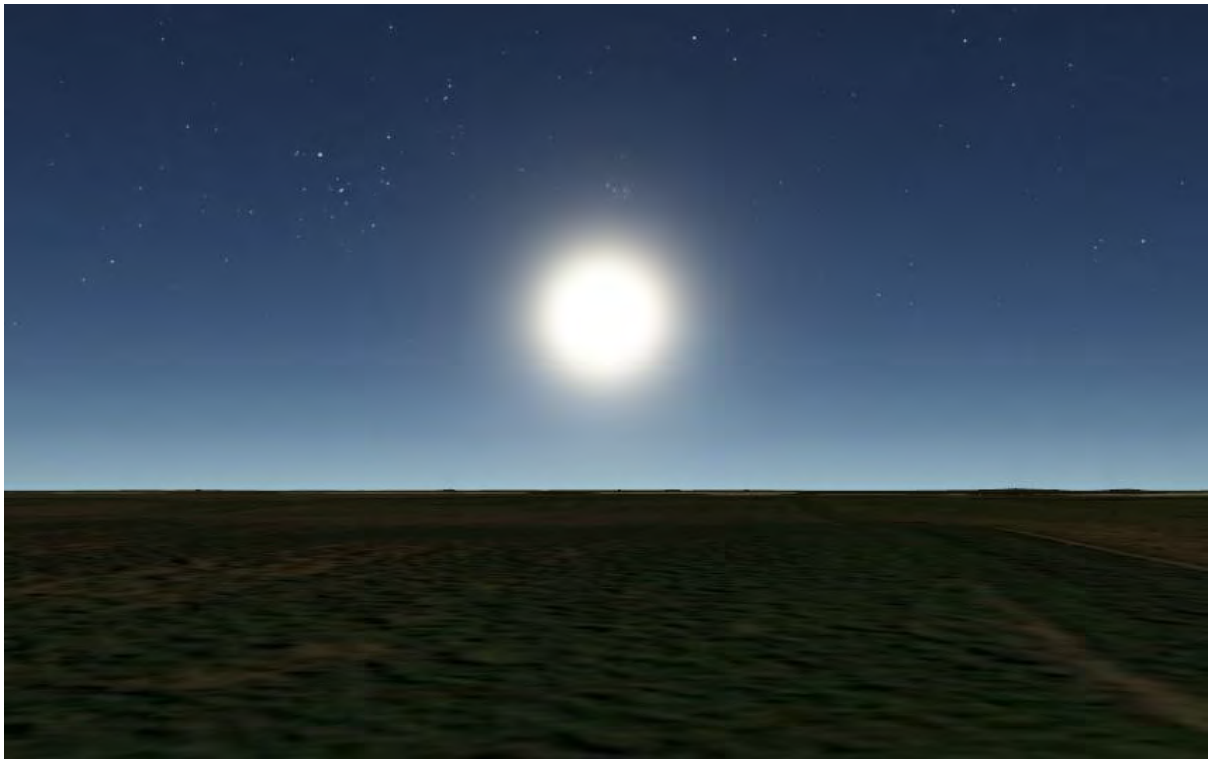


July 1st 18:00 UTC

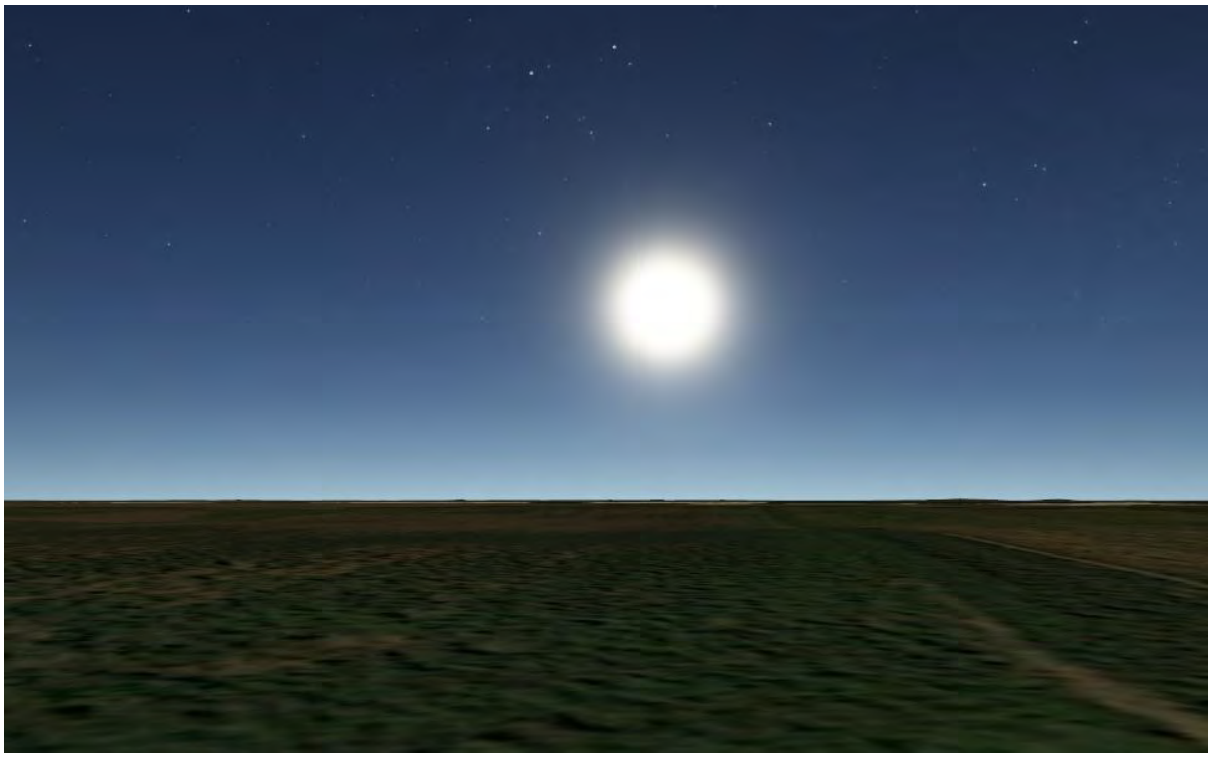


Receptor 85

May 15th 18:45 UTC

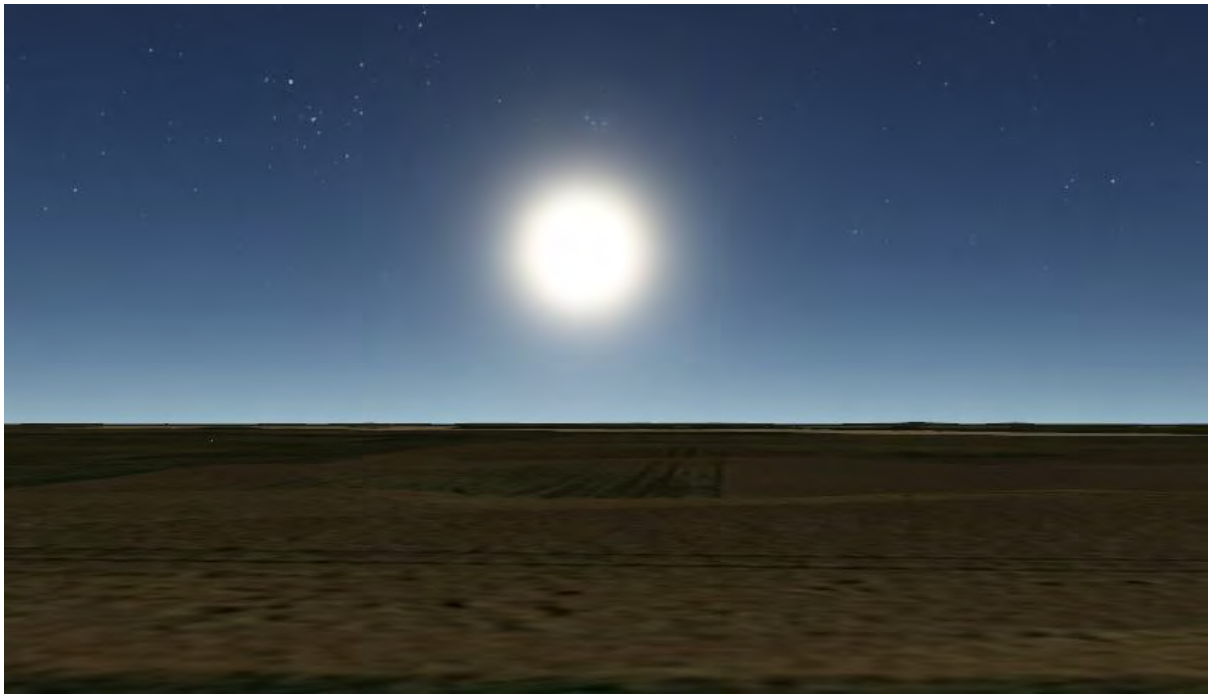


July 1st 19:00 UTC

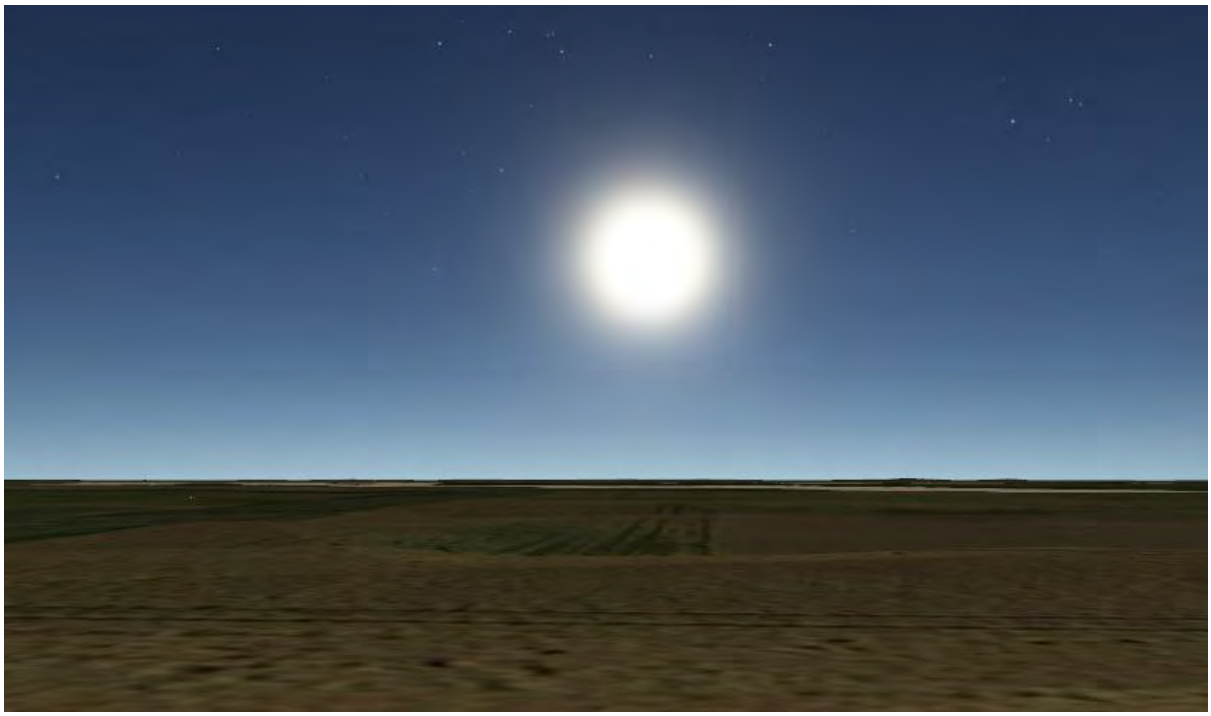


Receptor 86

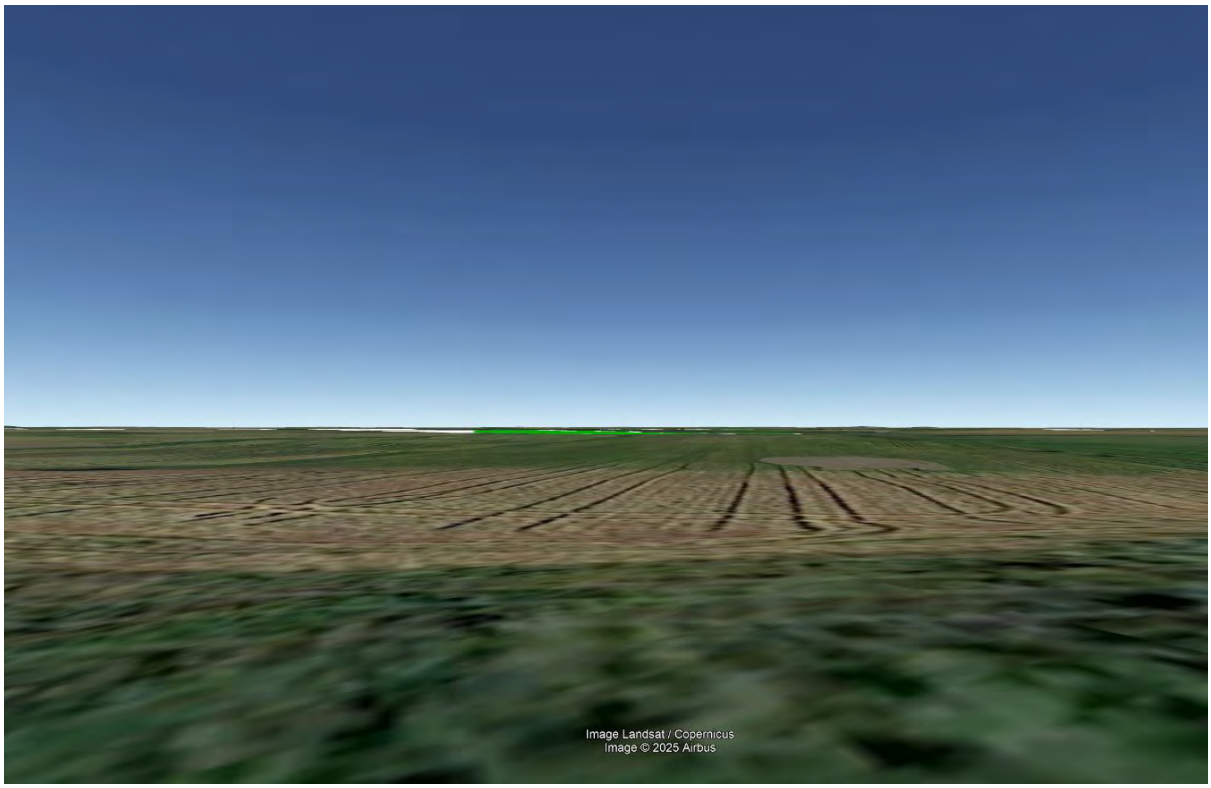
May 15th 18:45 UTC



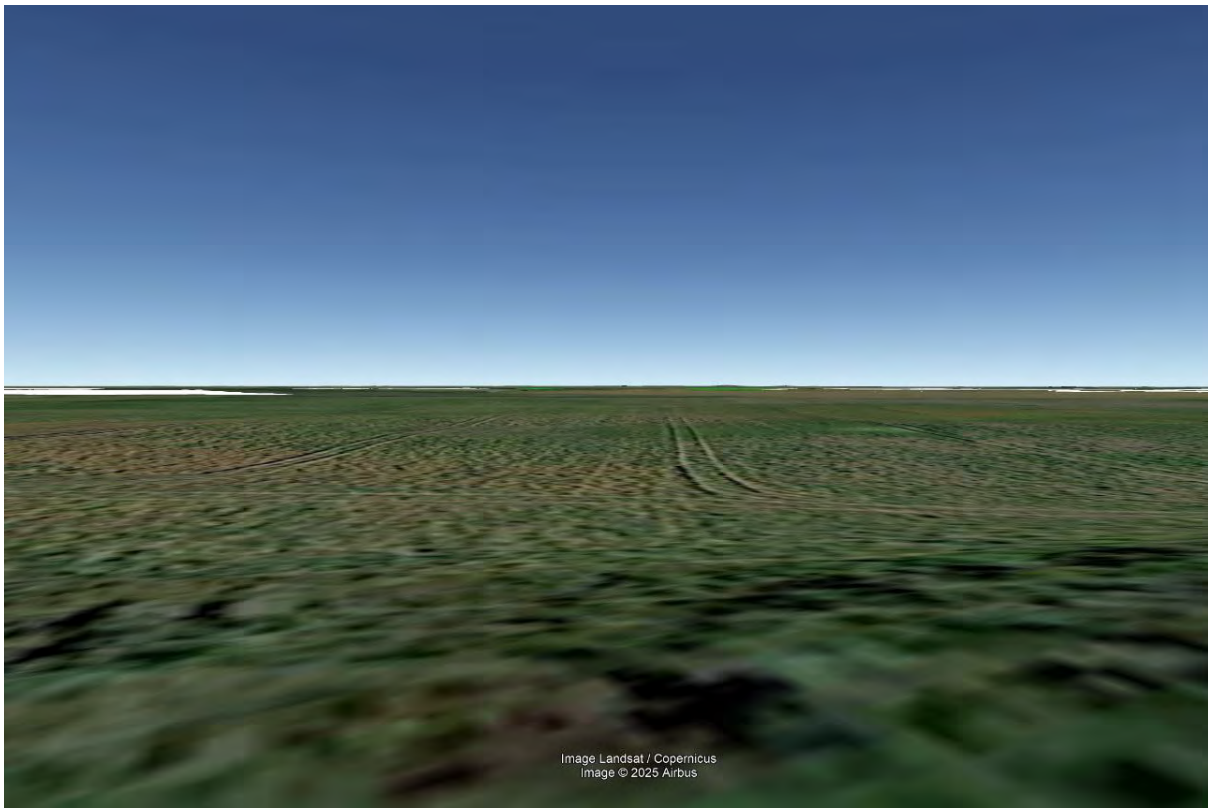
July 1st 19:00 UTC



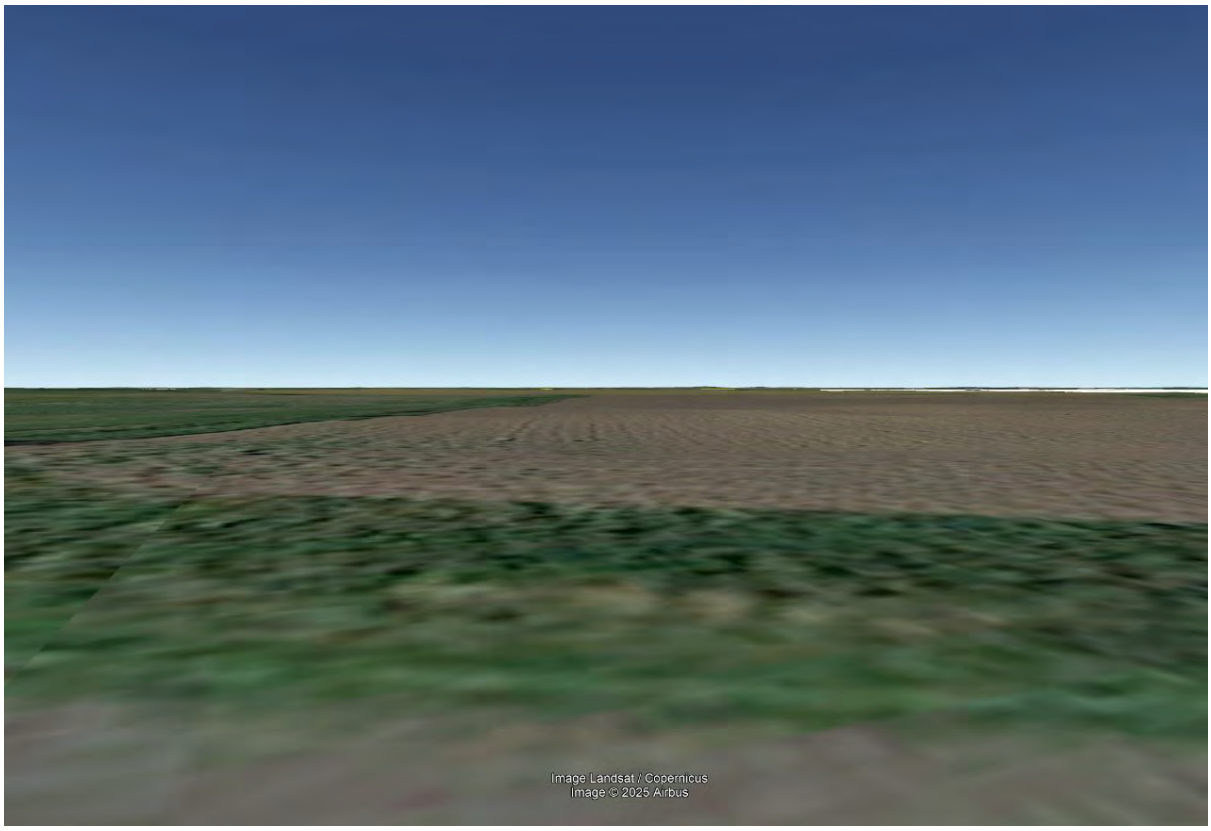
Receptor 87



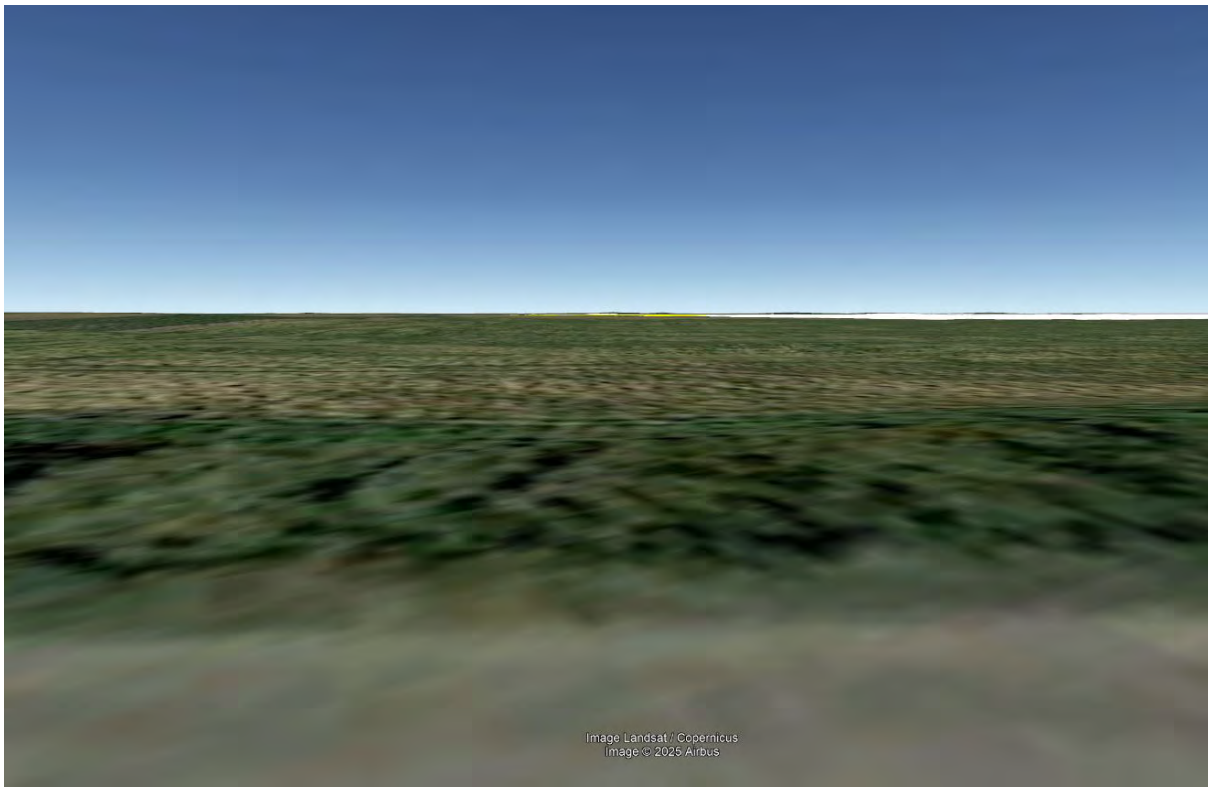
Receptor 88

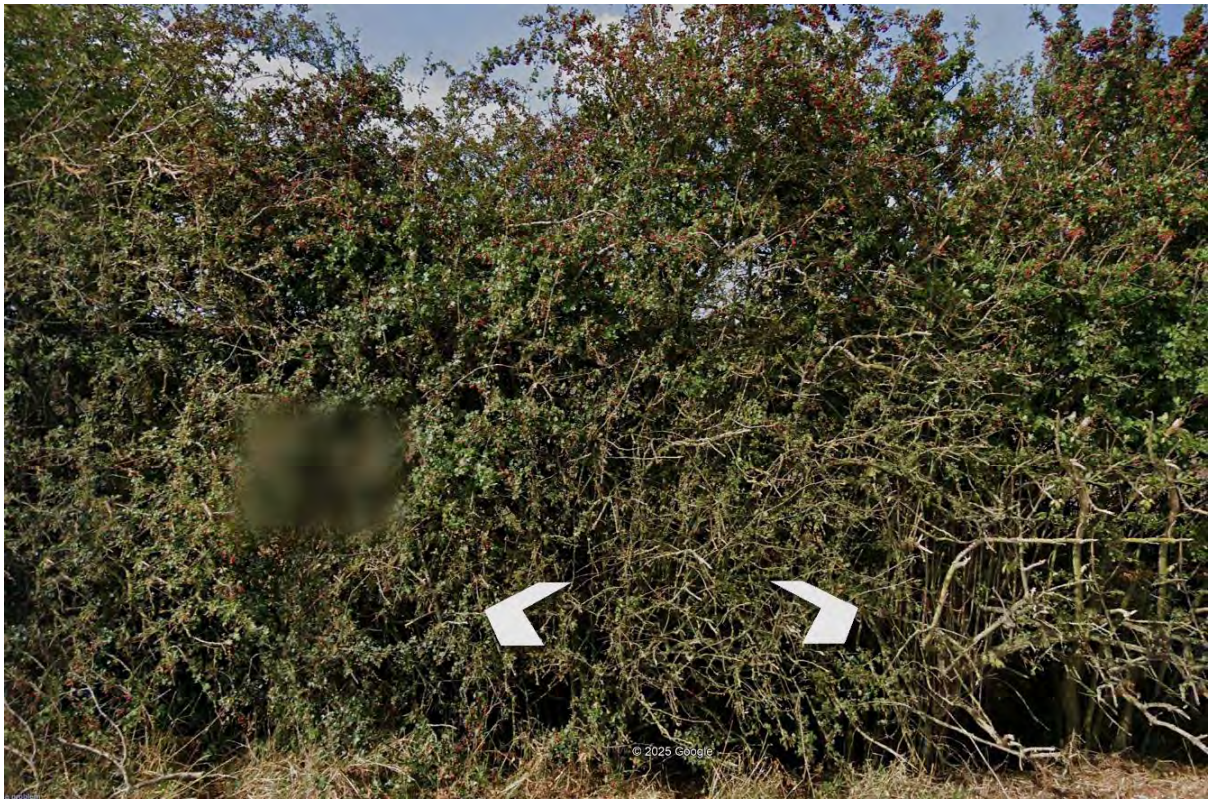


Receptor 89

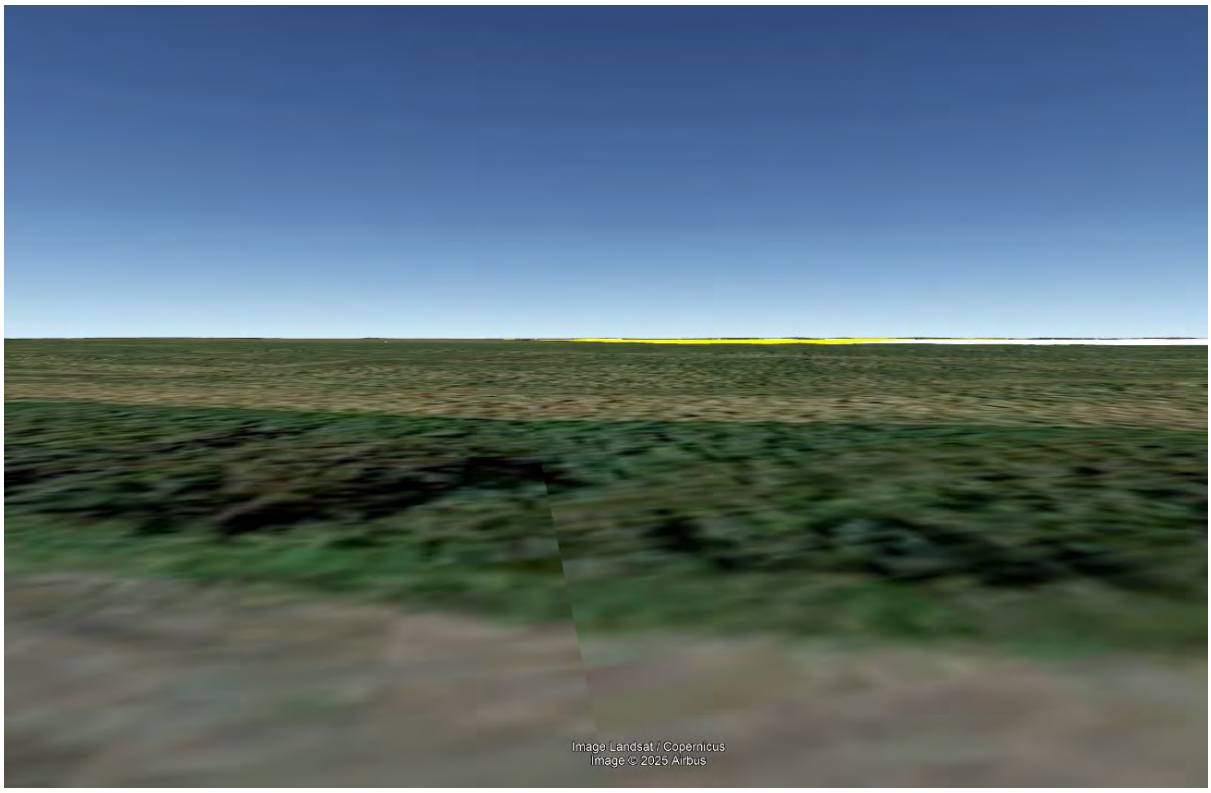


Receptor 90



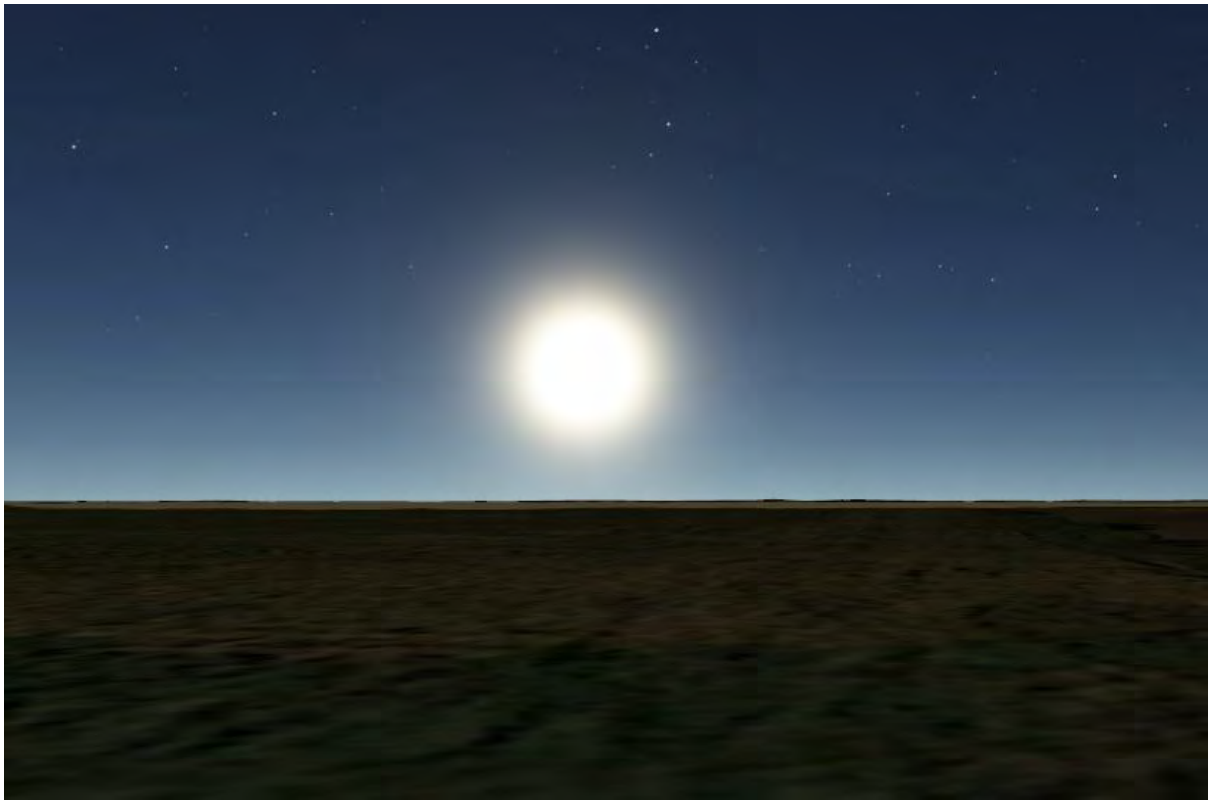


Receptor 91

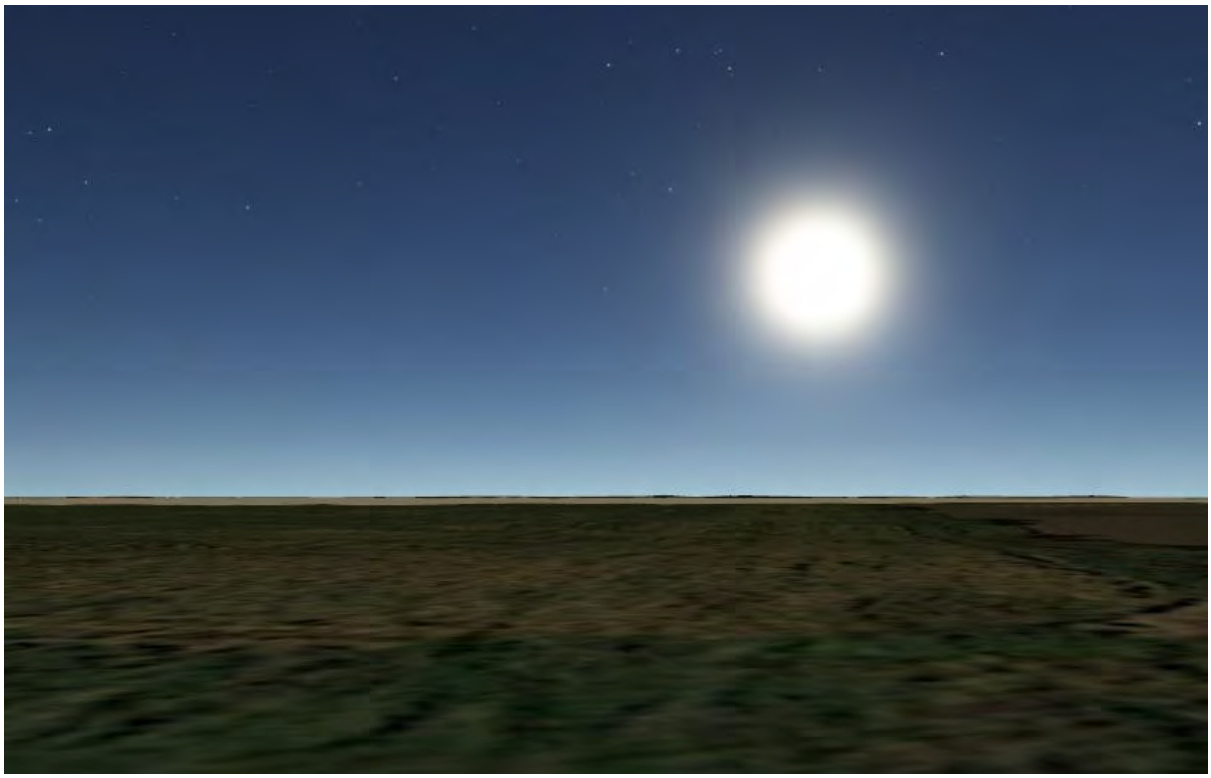


Receptor 92

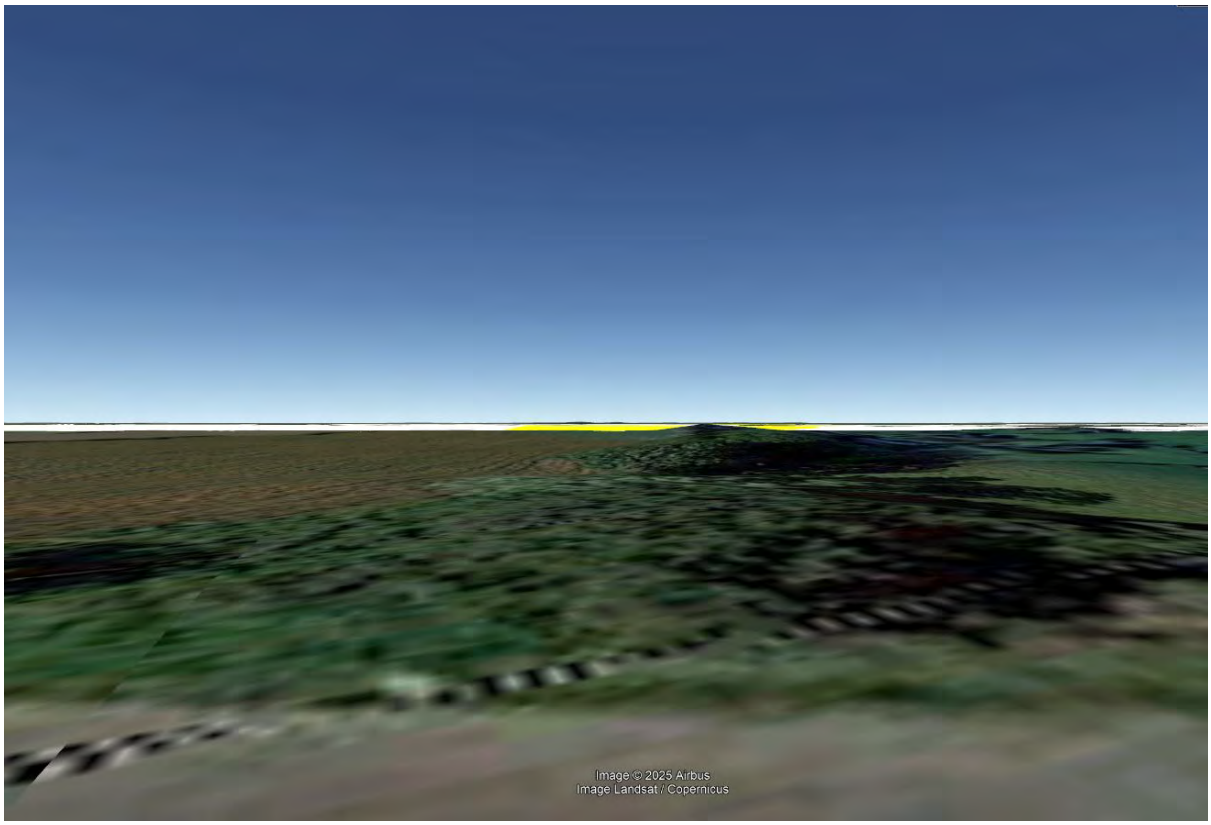
April 15th 18:15 UTC



July 1st 19:00 UTC

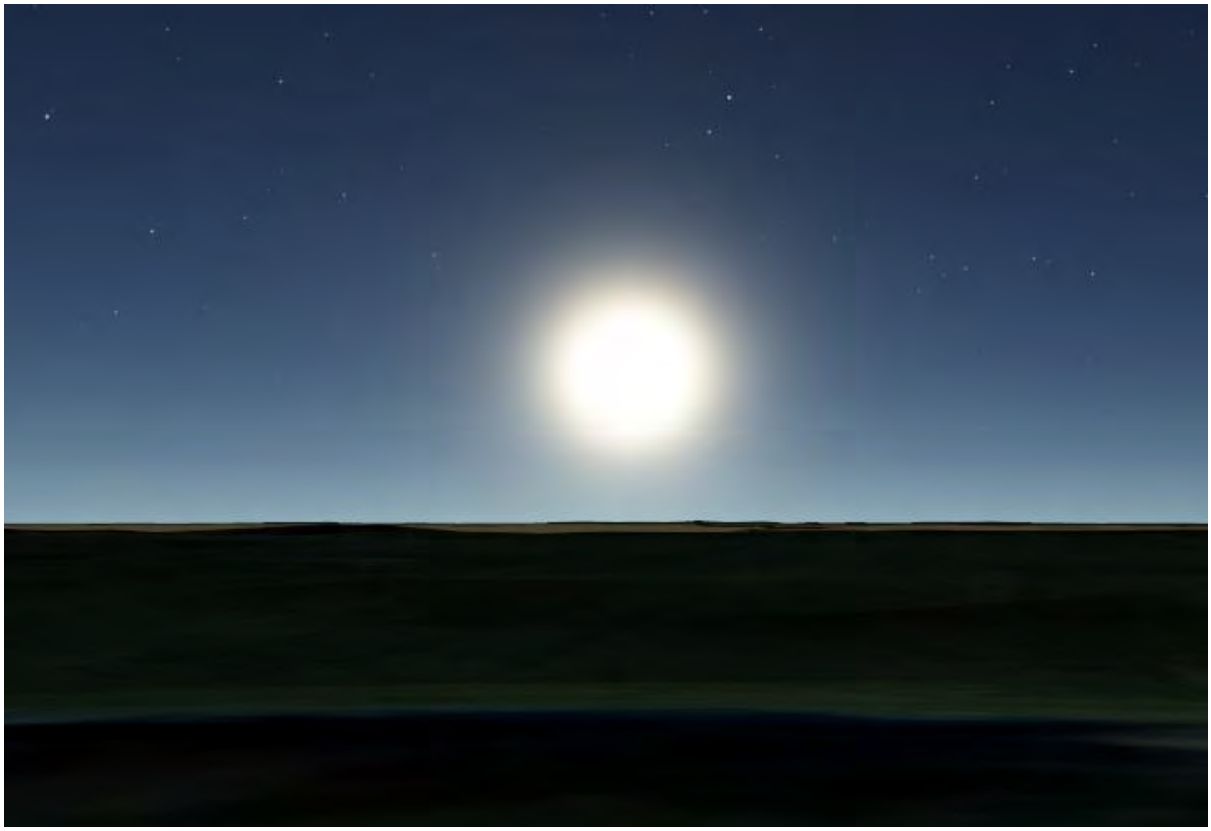


Receptor 93

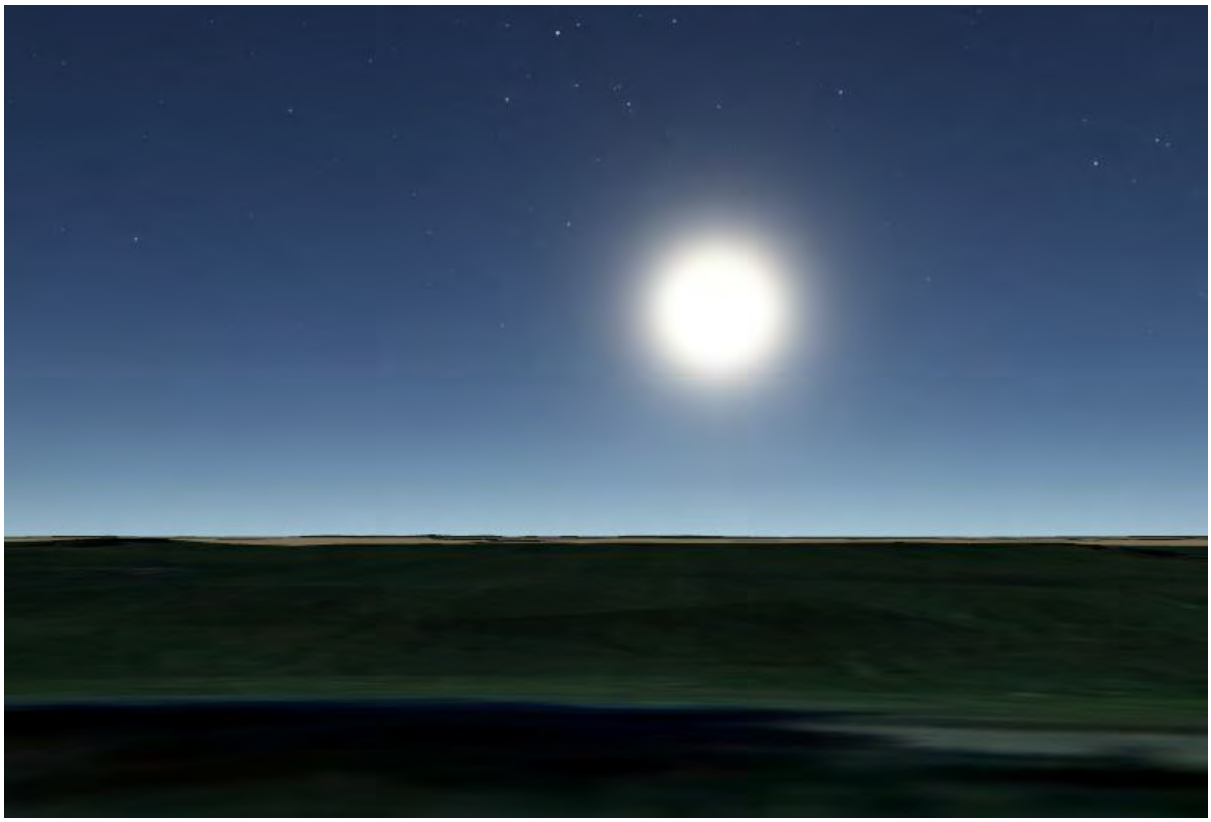


Receptor 94

April 15th 18:15 UTC

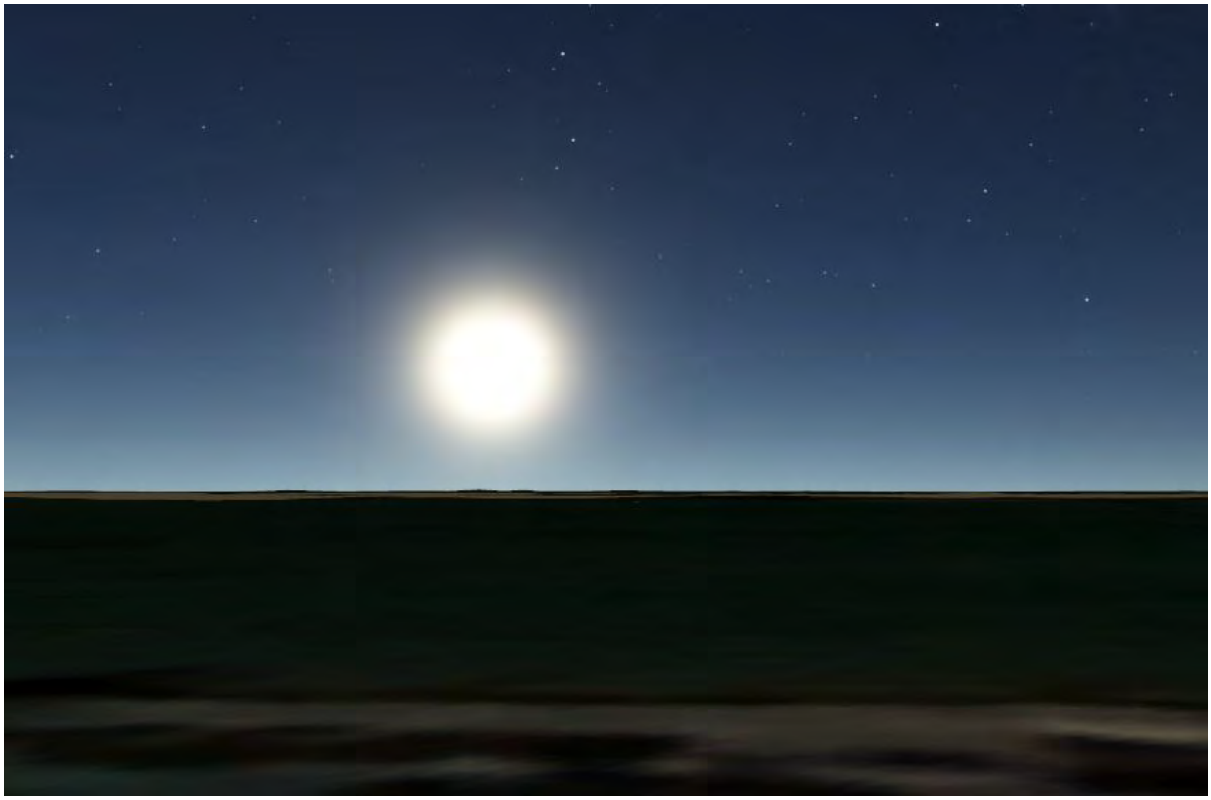


July 1st 19:00 UTC

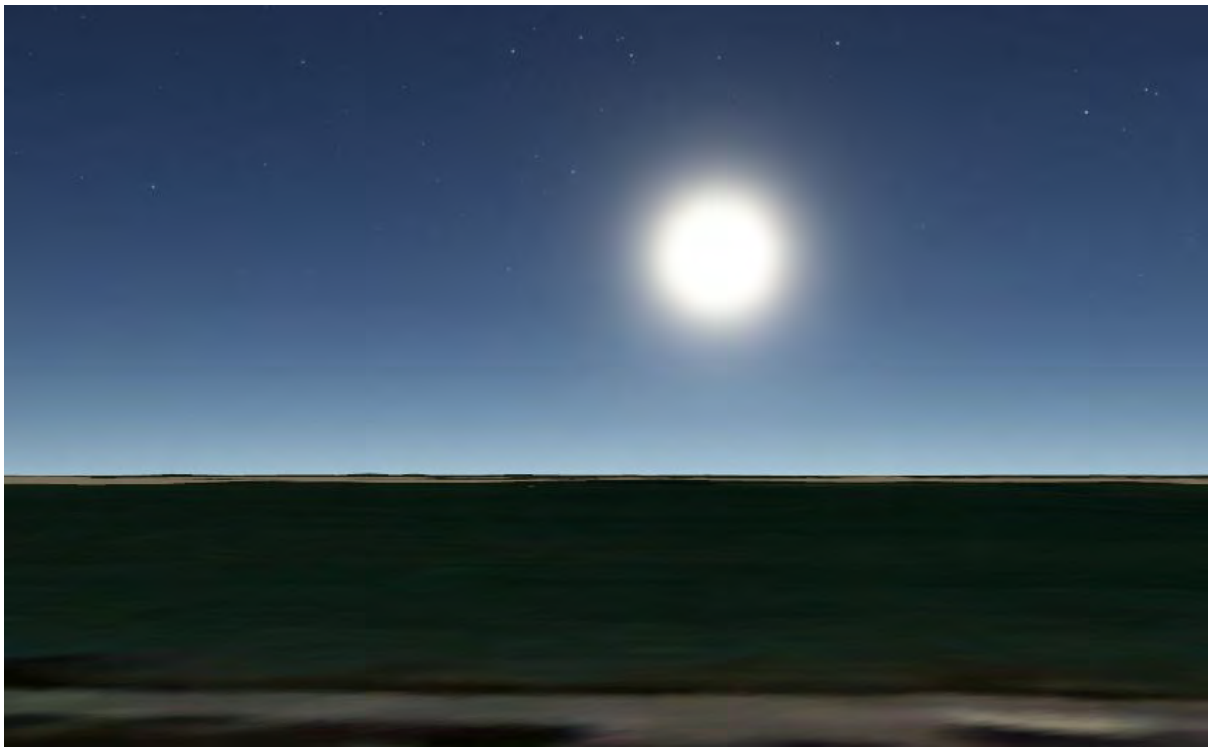


Receptor 95

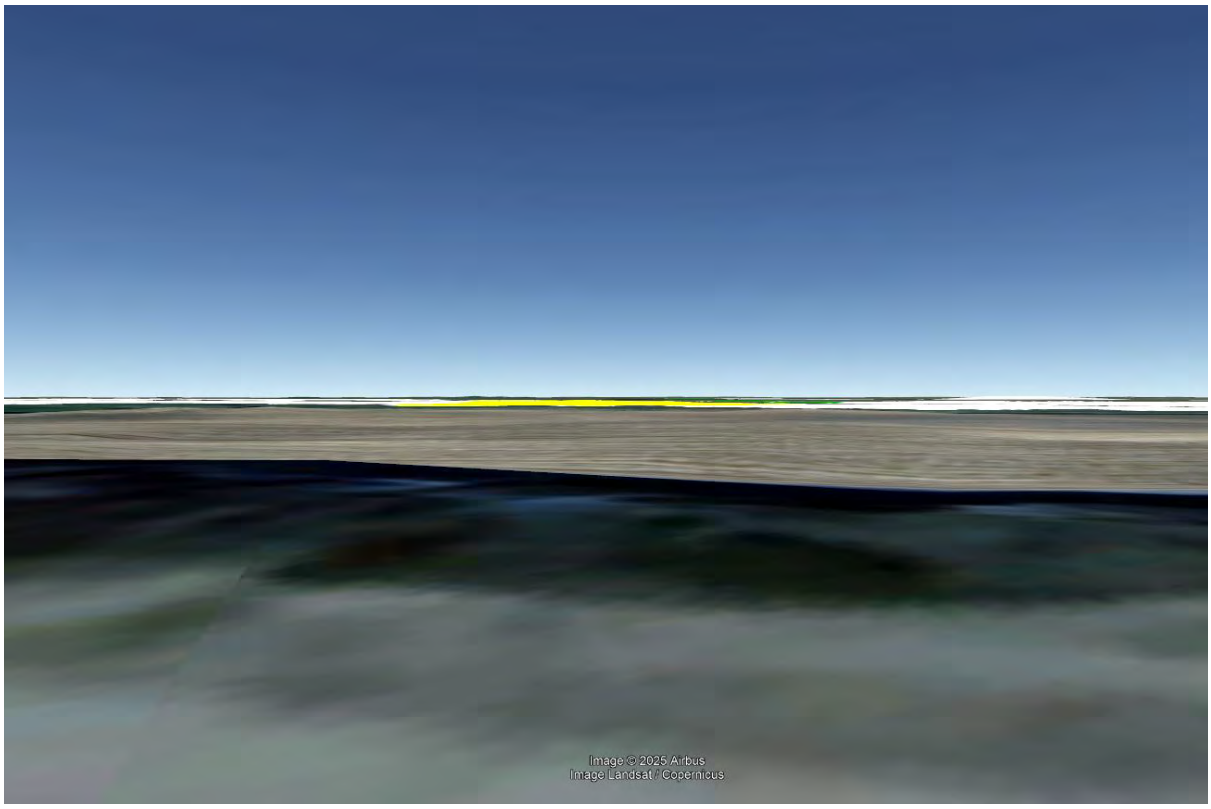
April 15th 18:15 UTC



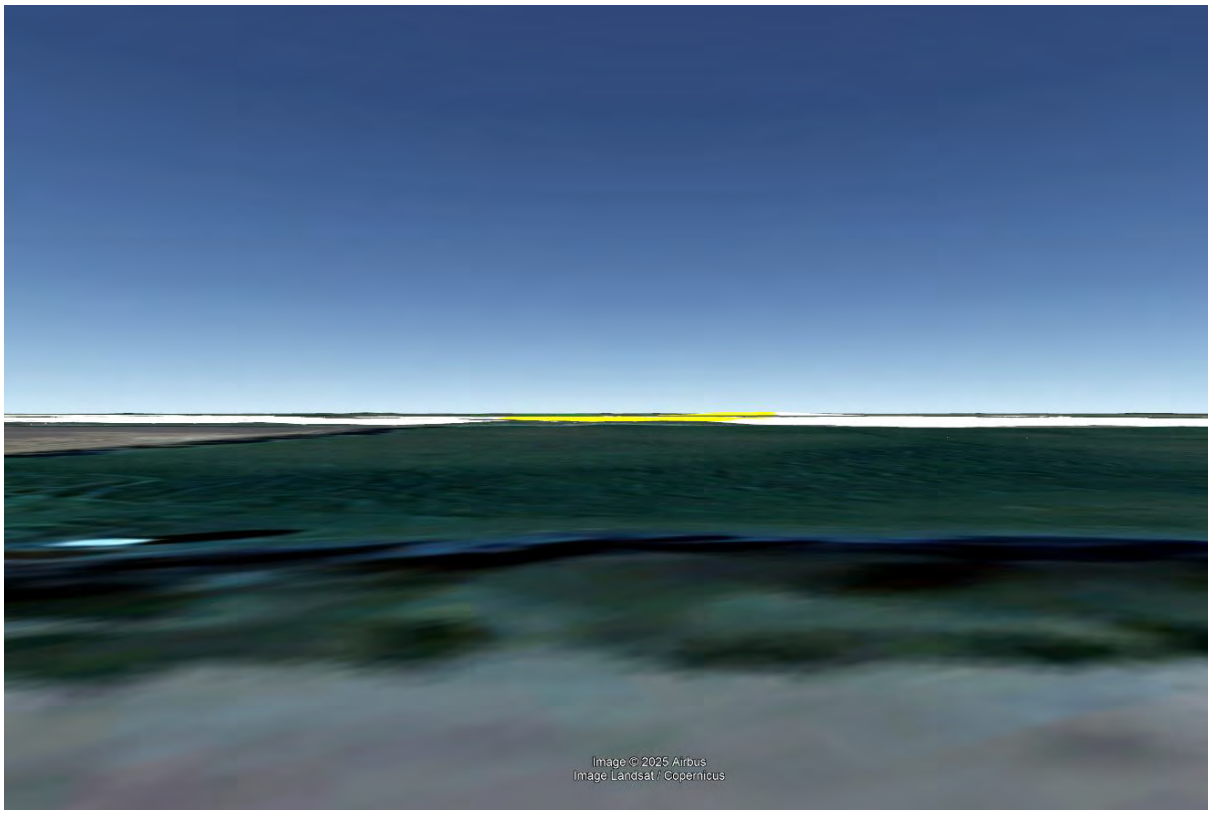
July 1st 19:00 UTC



Receptor 96

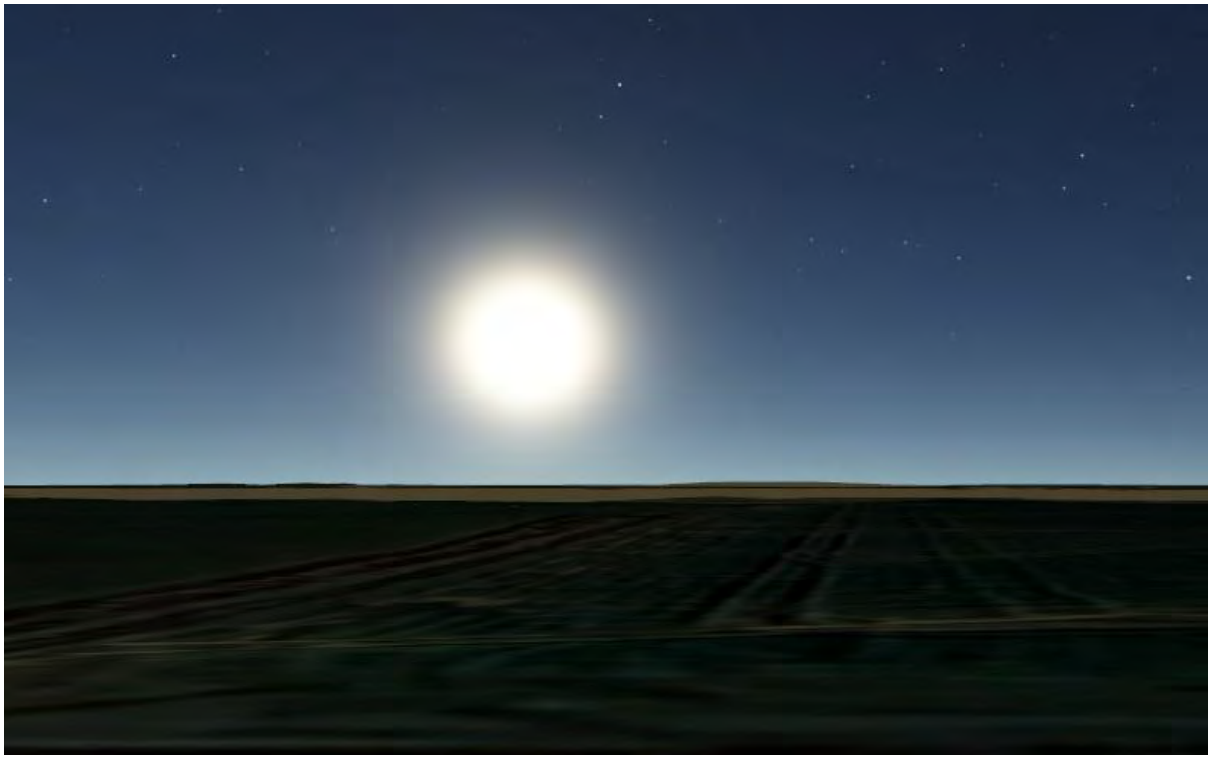


Receptor 97

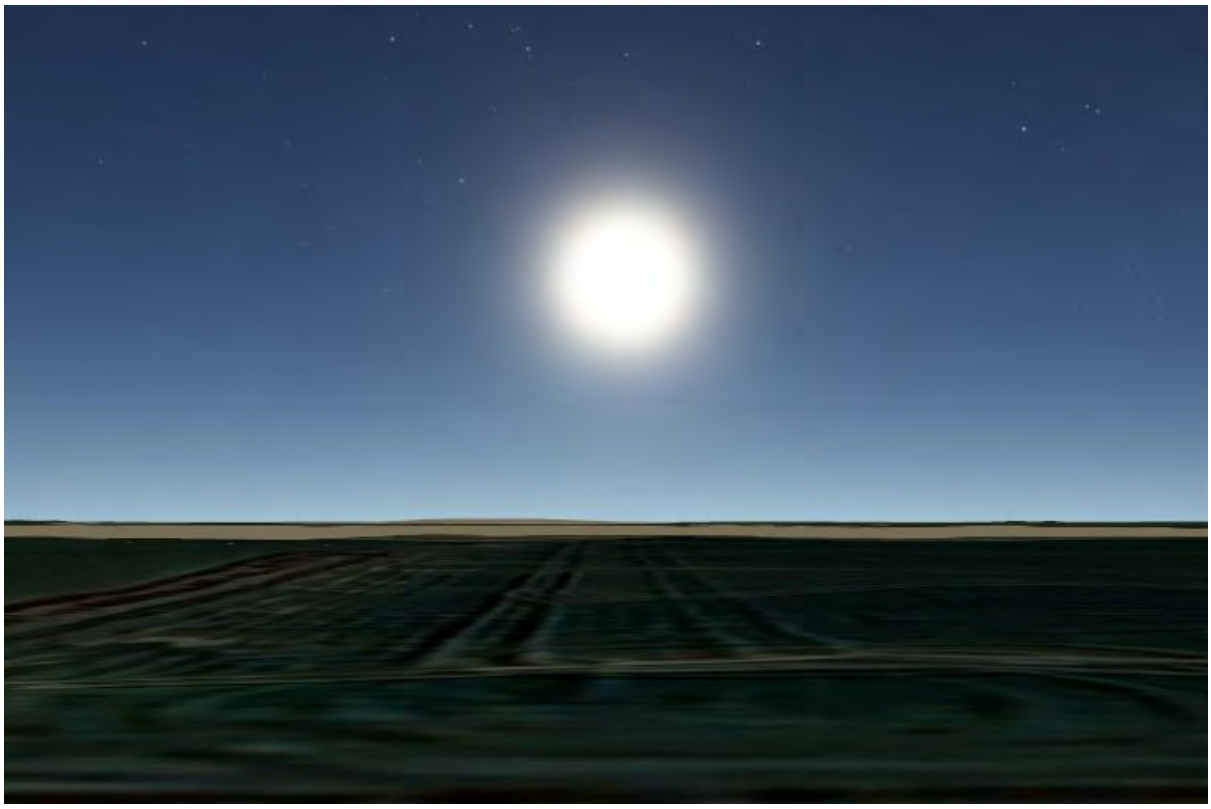


Receptor 98

April 15th 18:15 UTC

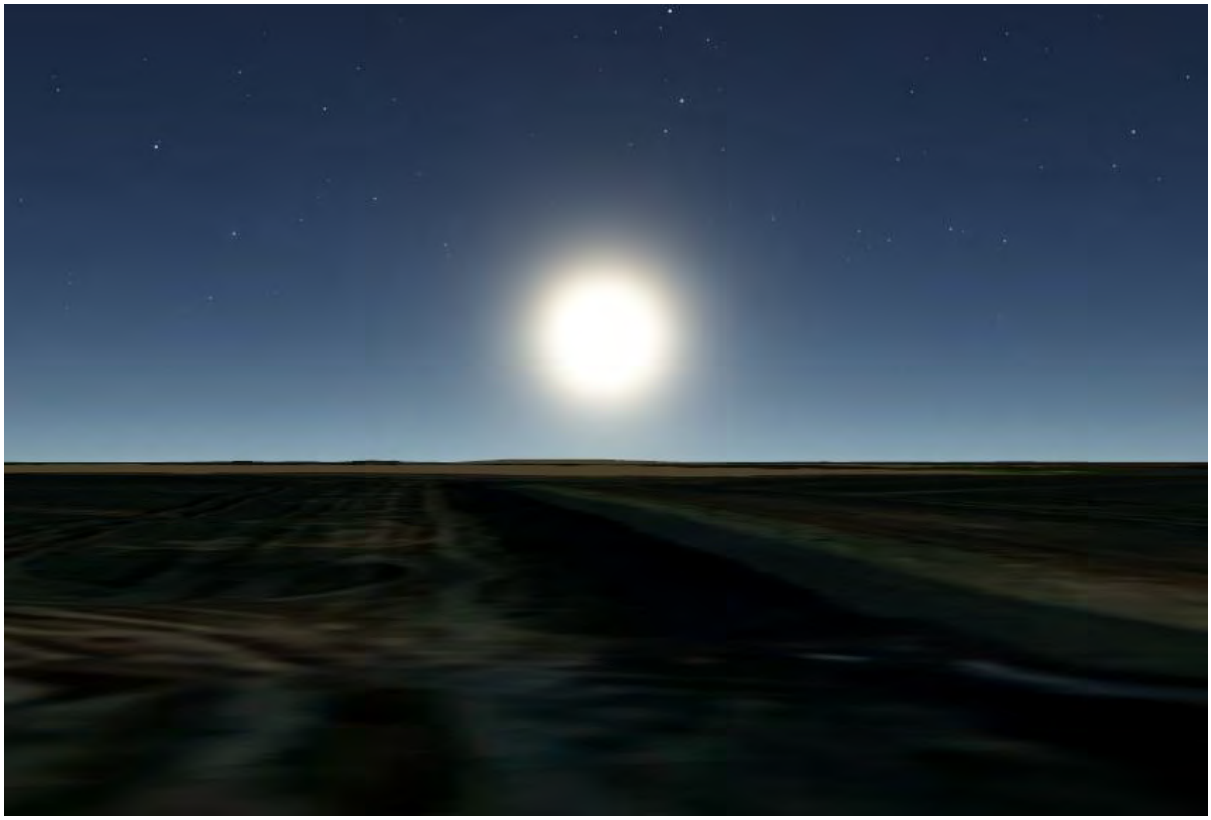


July 1st 19:00 UTC

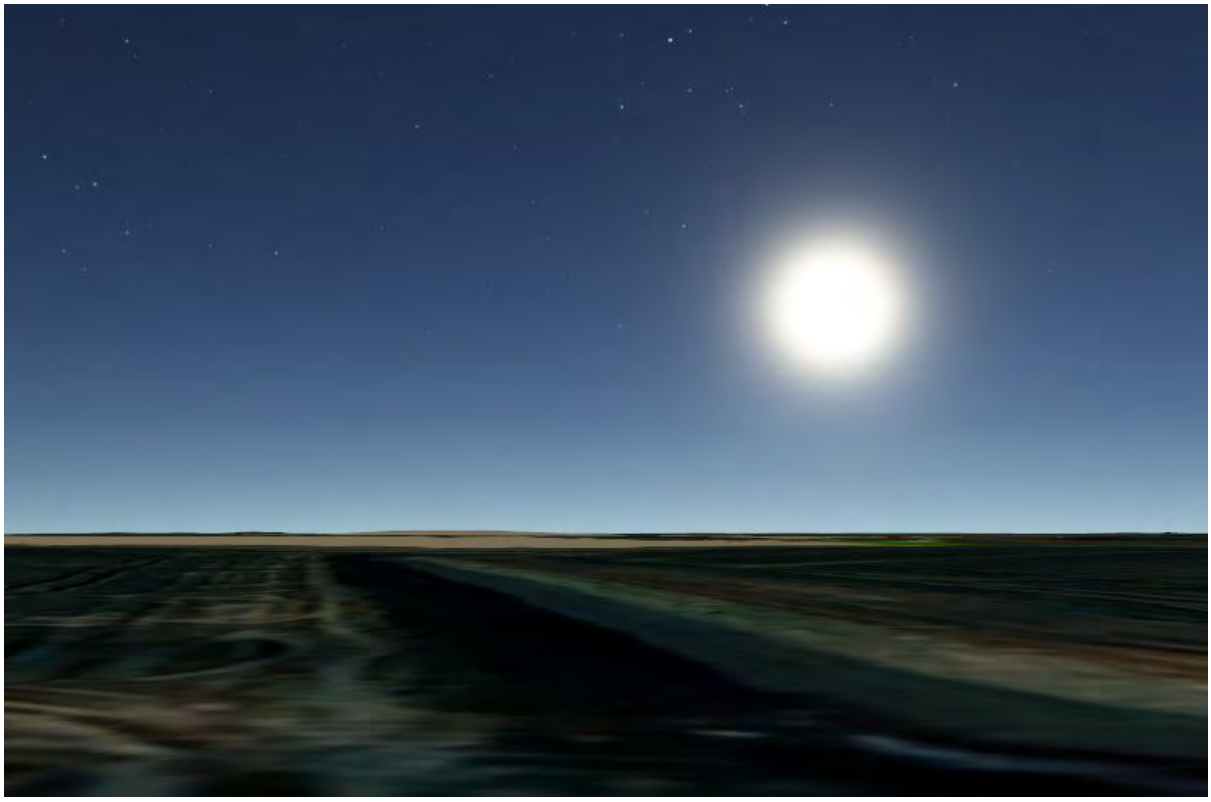


Receptor 99

April 15th 18:15 UTC

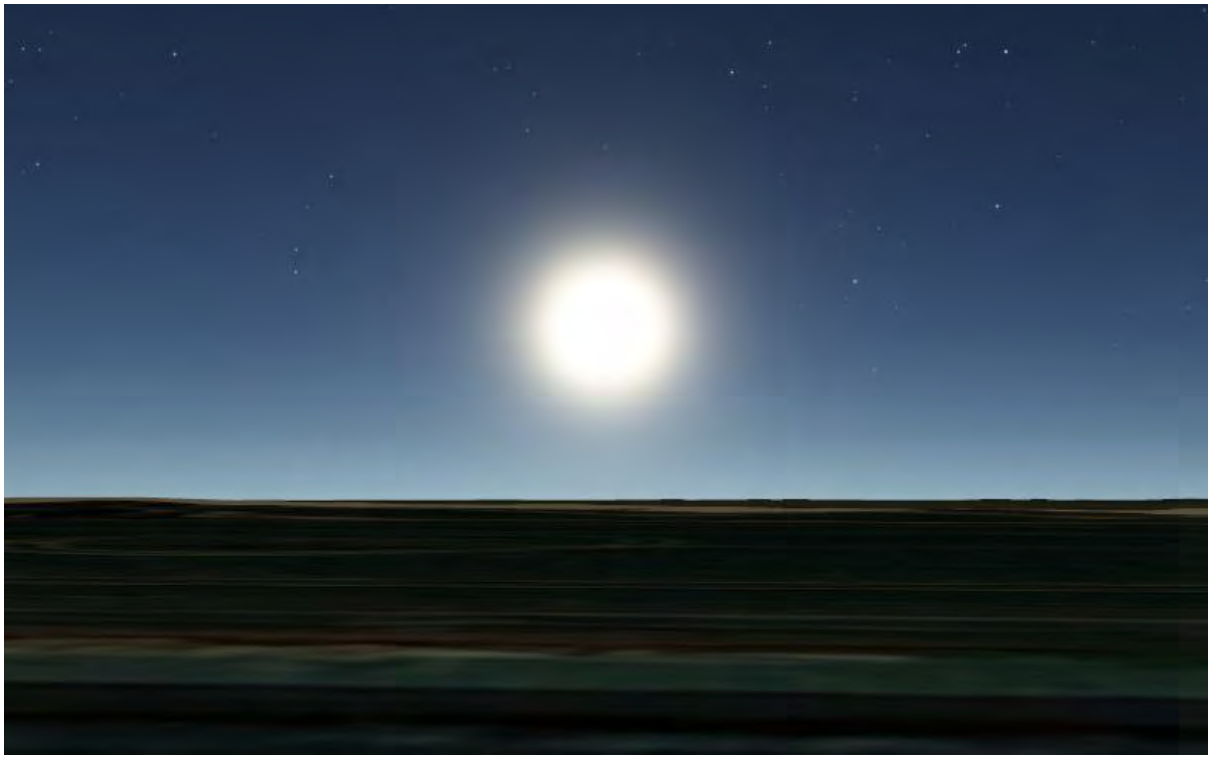


July 1st 19:00 UTC

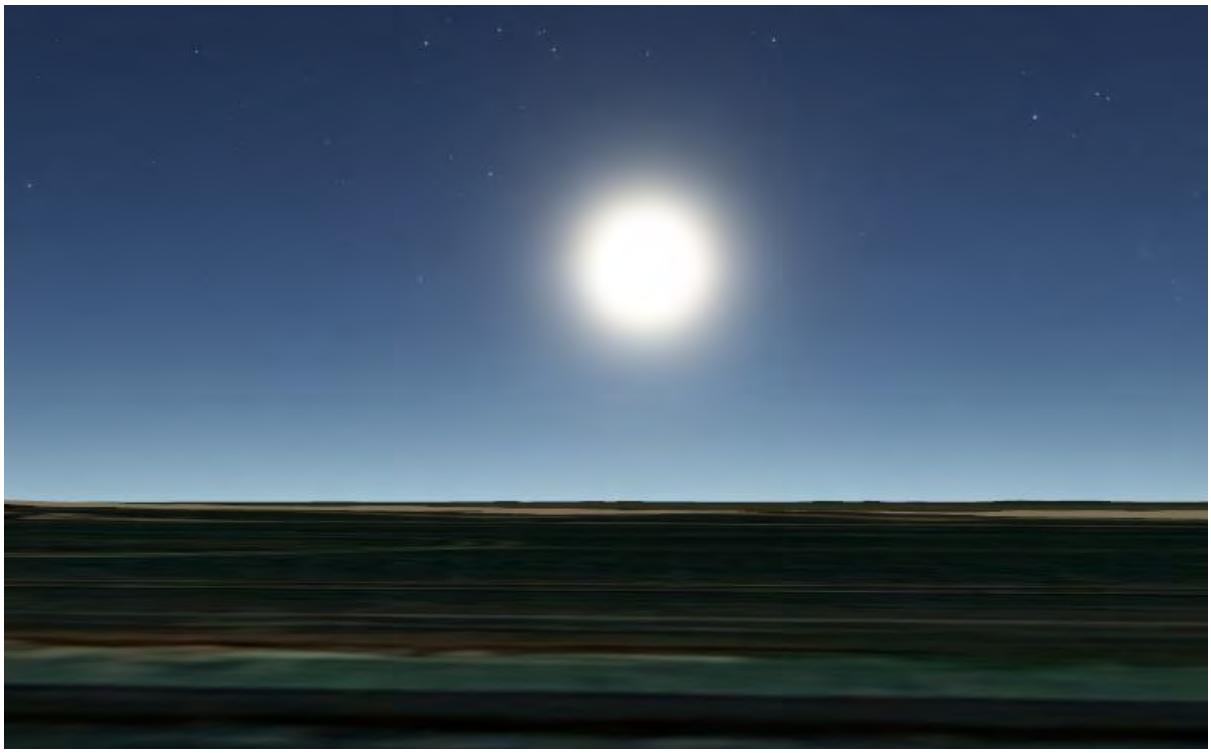


Receptor 100

May 1st 18:30 UTC

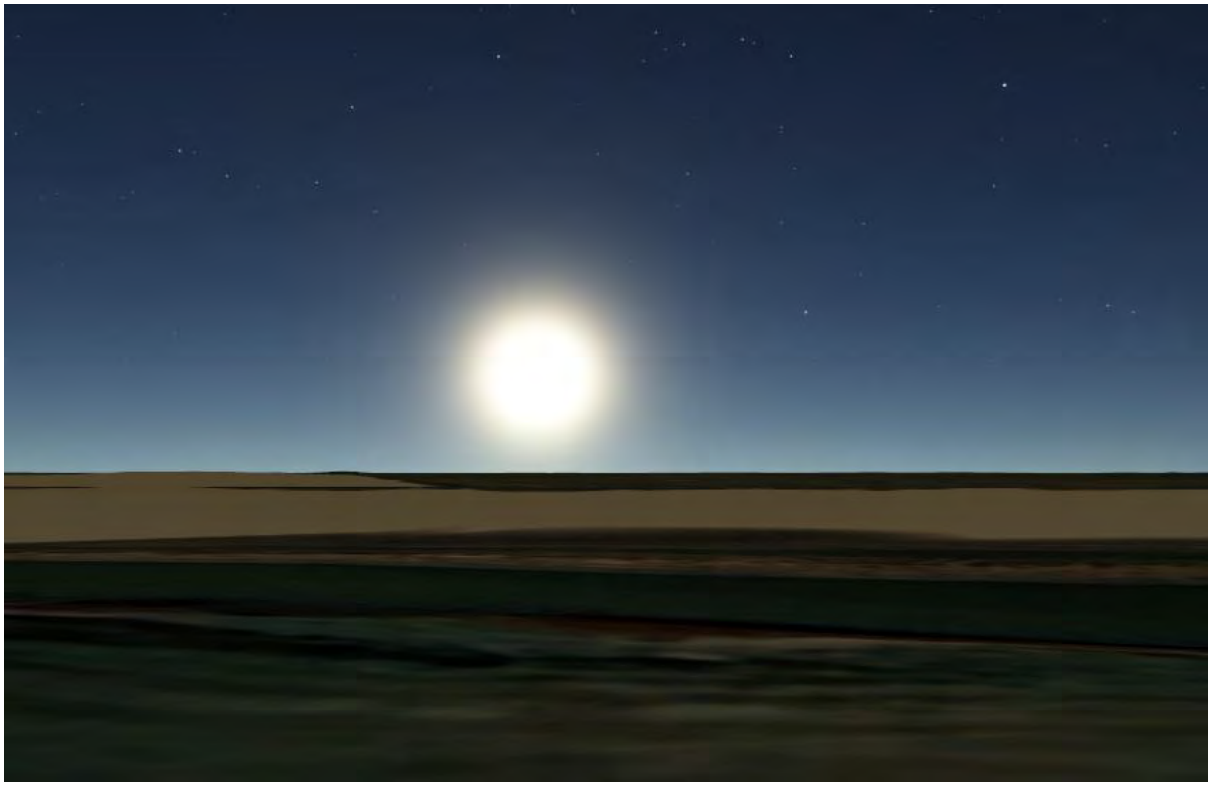


July 1st 19:00 UTC

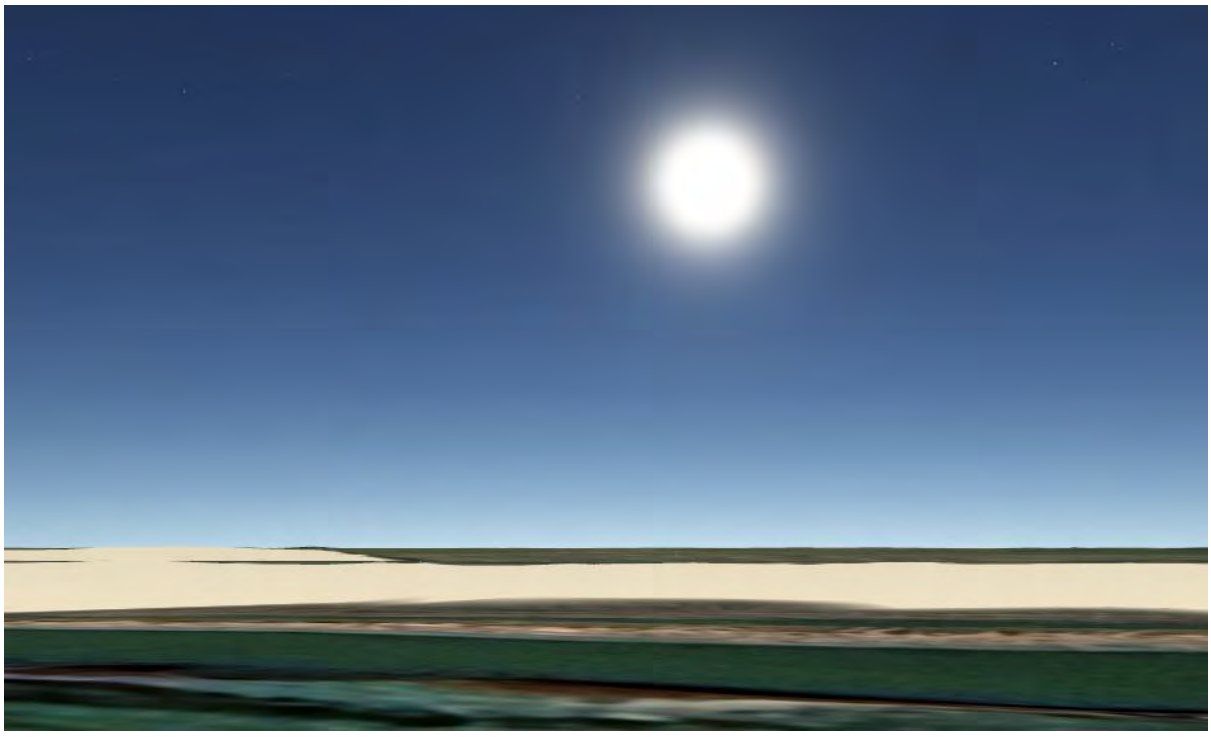


Receptor 101

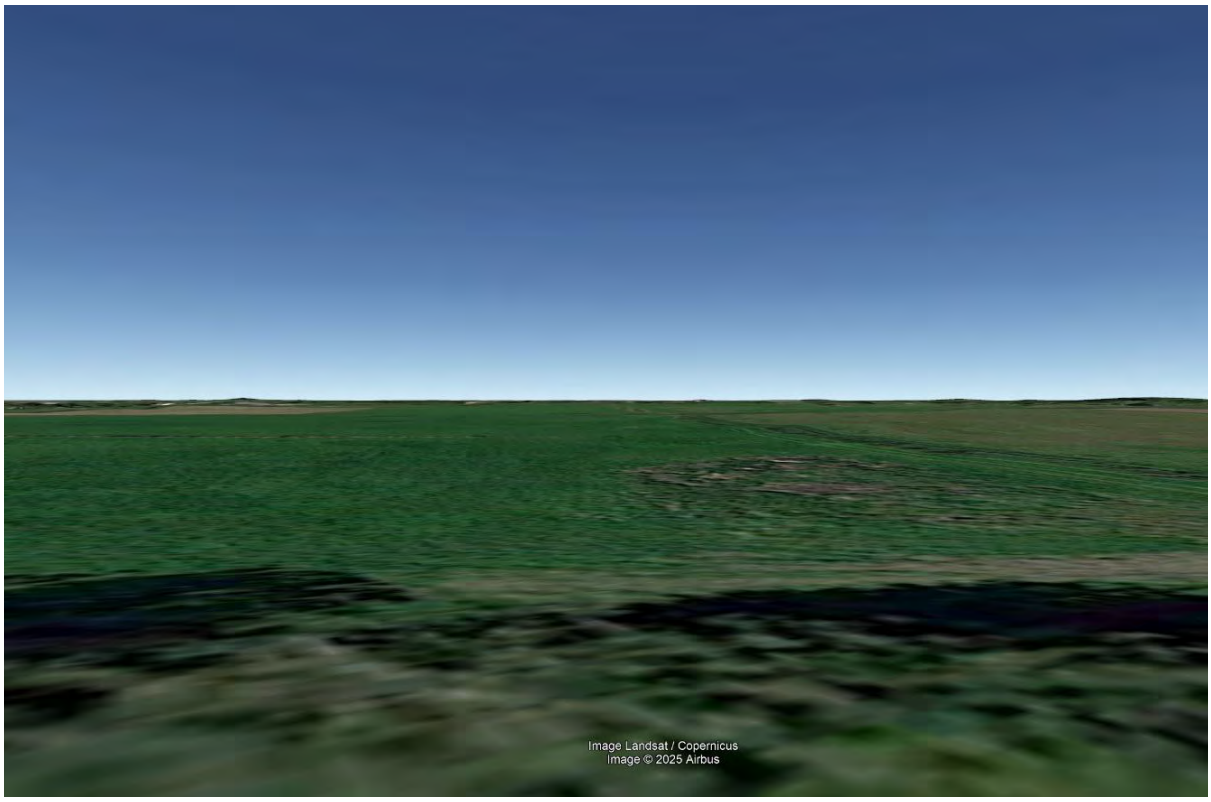
April 1st 18:00 UTC



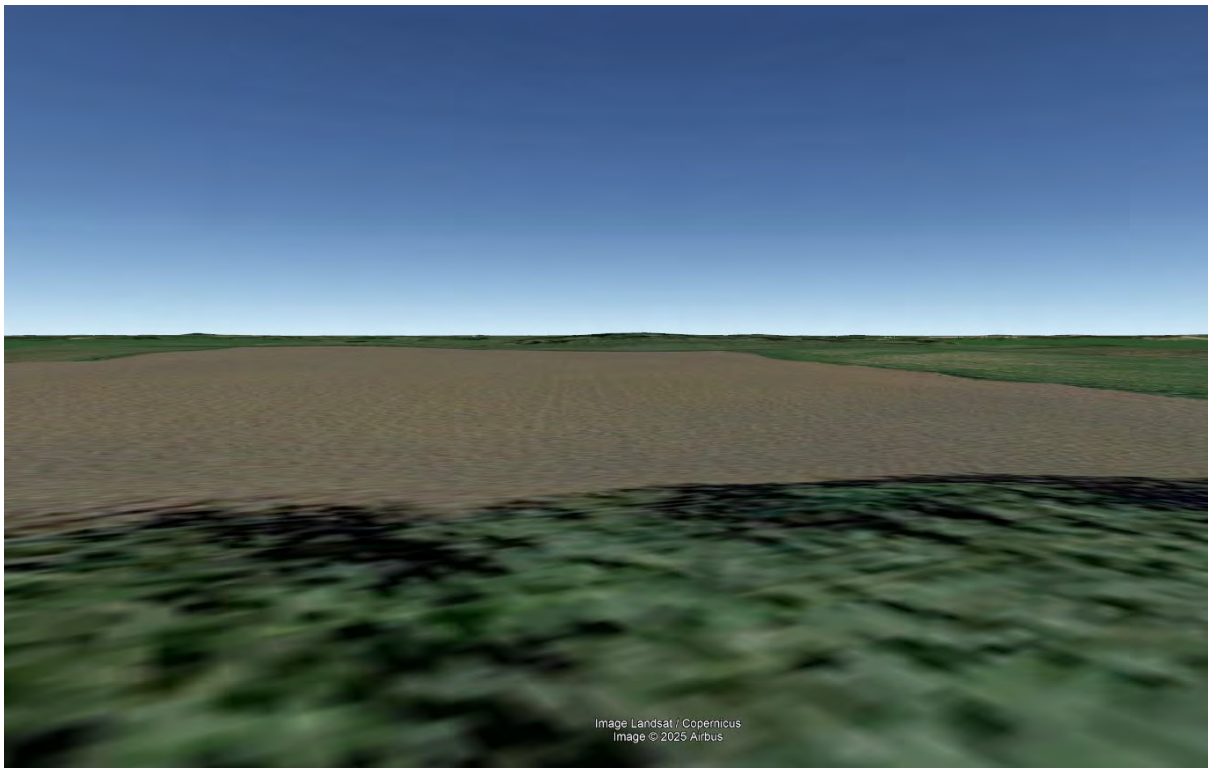
July 1st 18:00 UTC



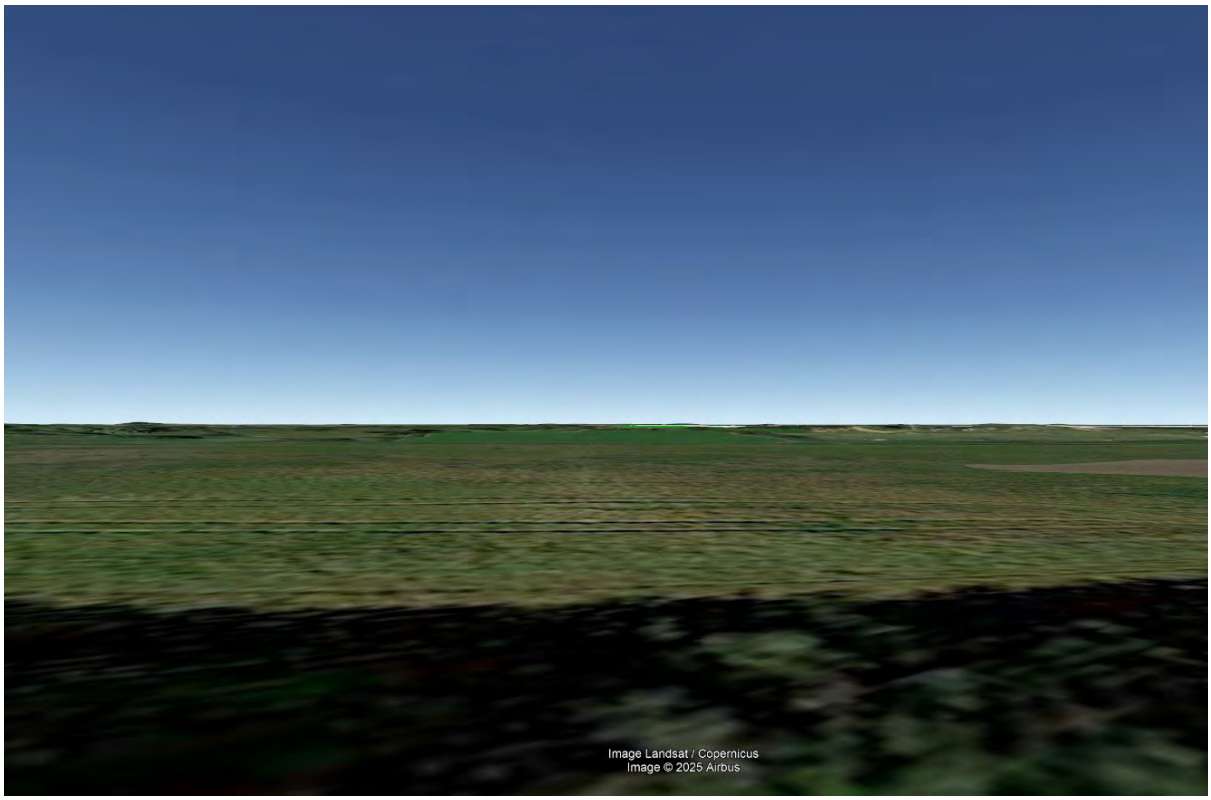
Receptor 105



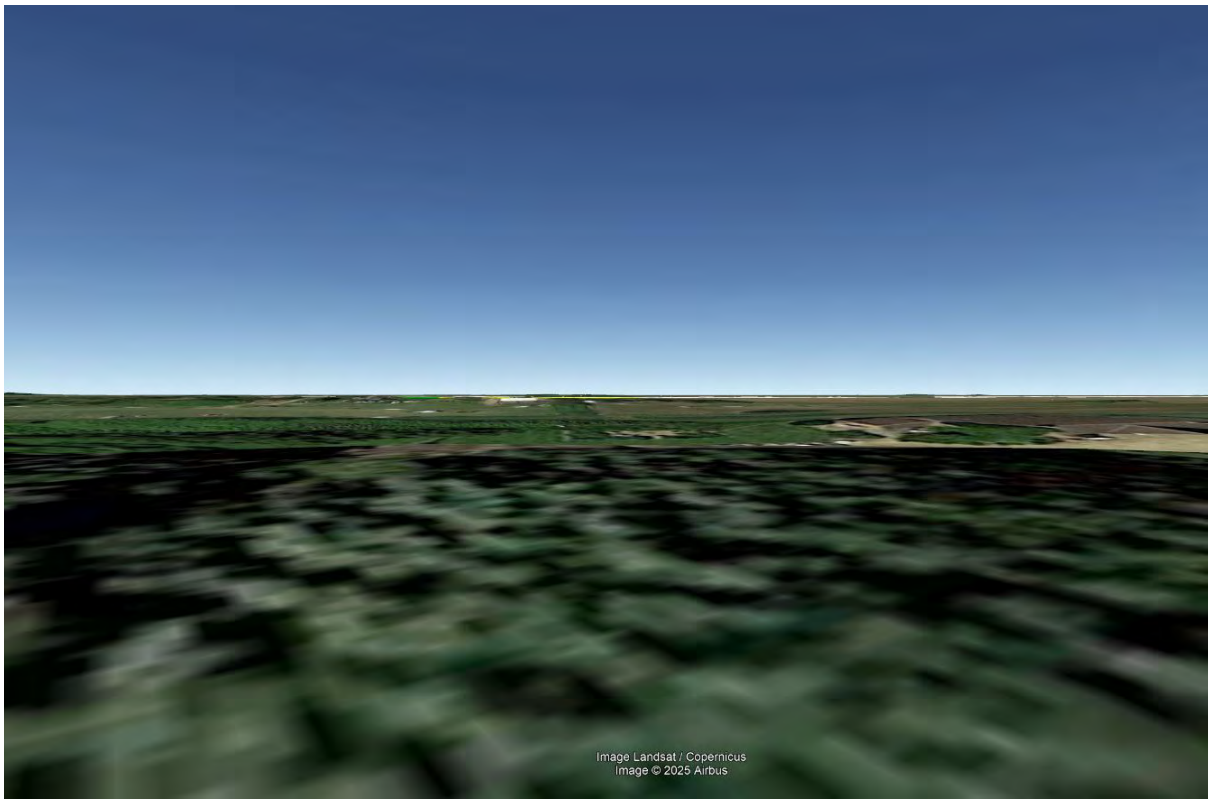
Receptor 106



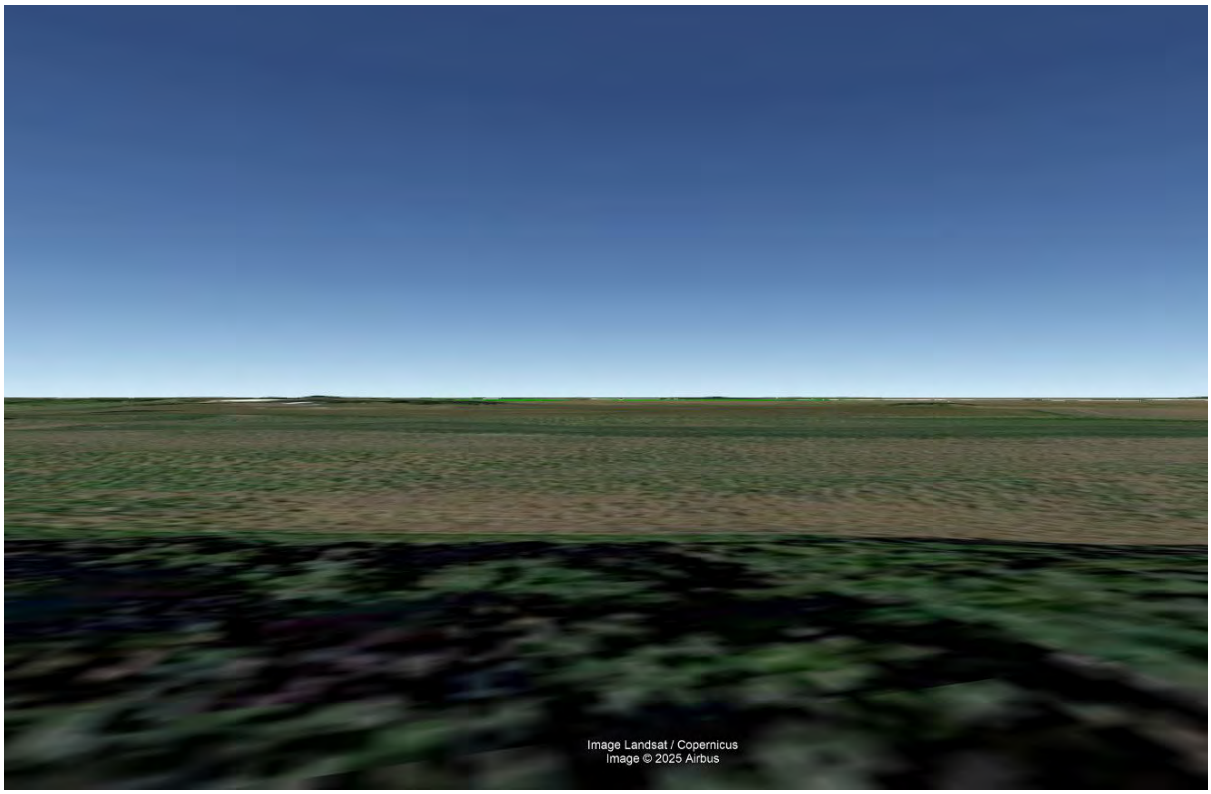
Receptor 107



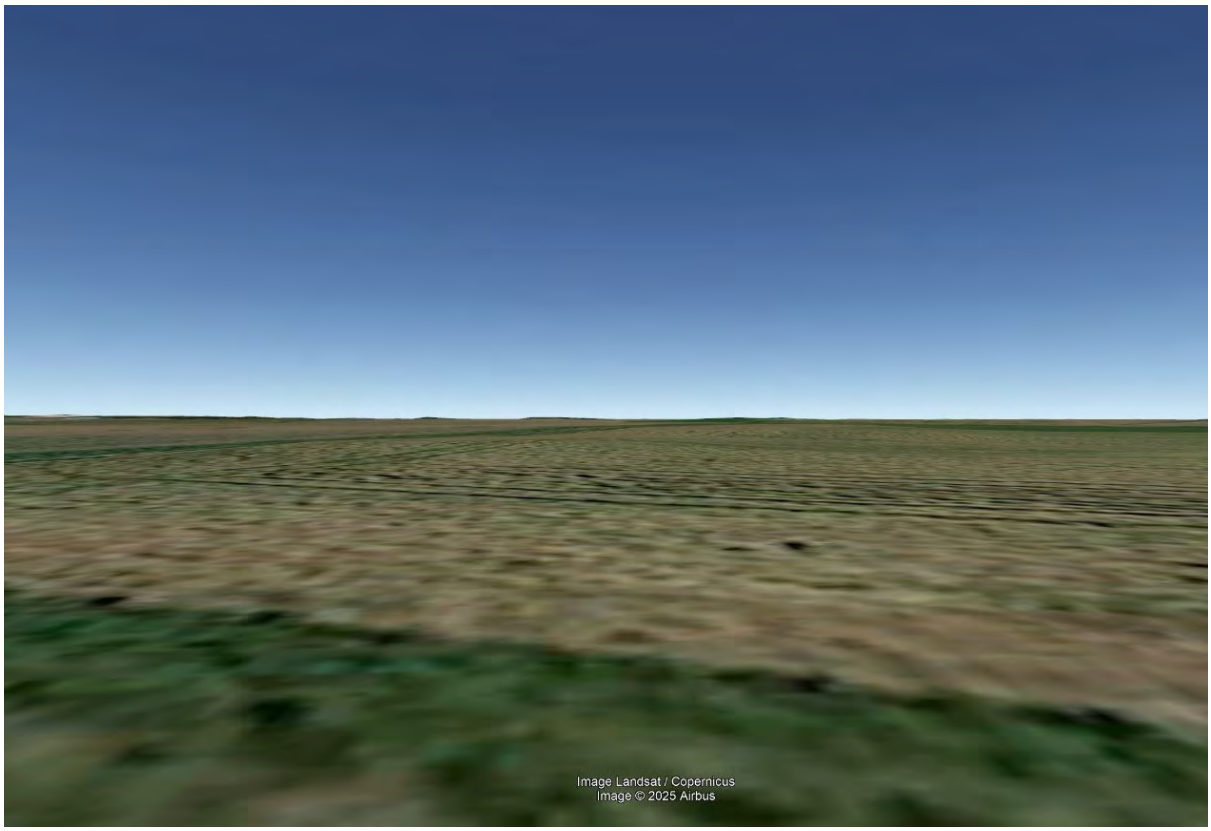
Receptor 108



Receptor 109

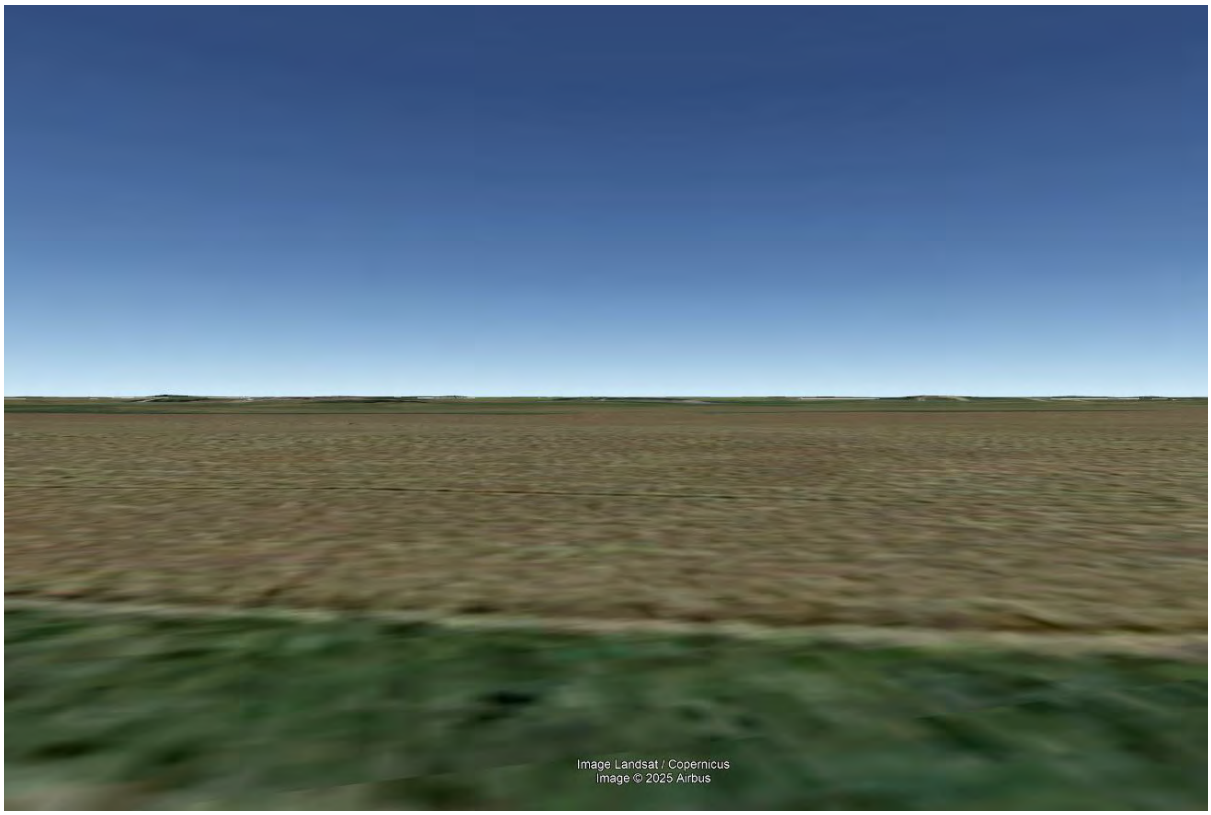


Receptor 110

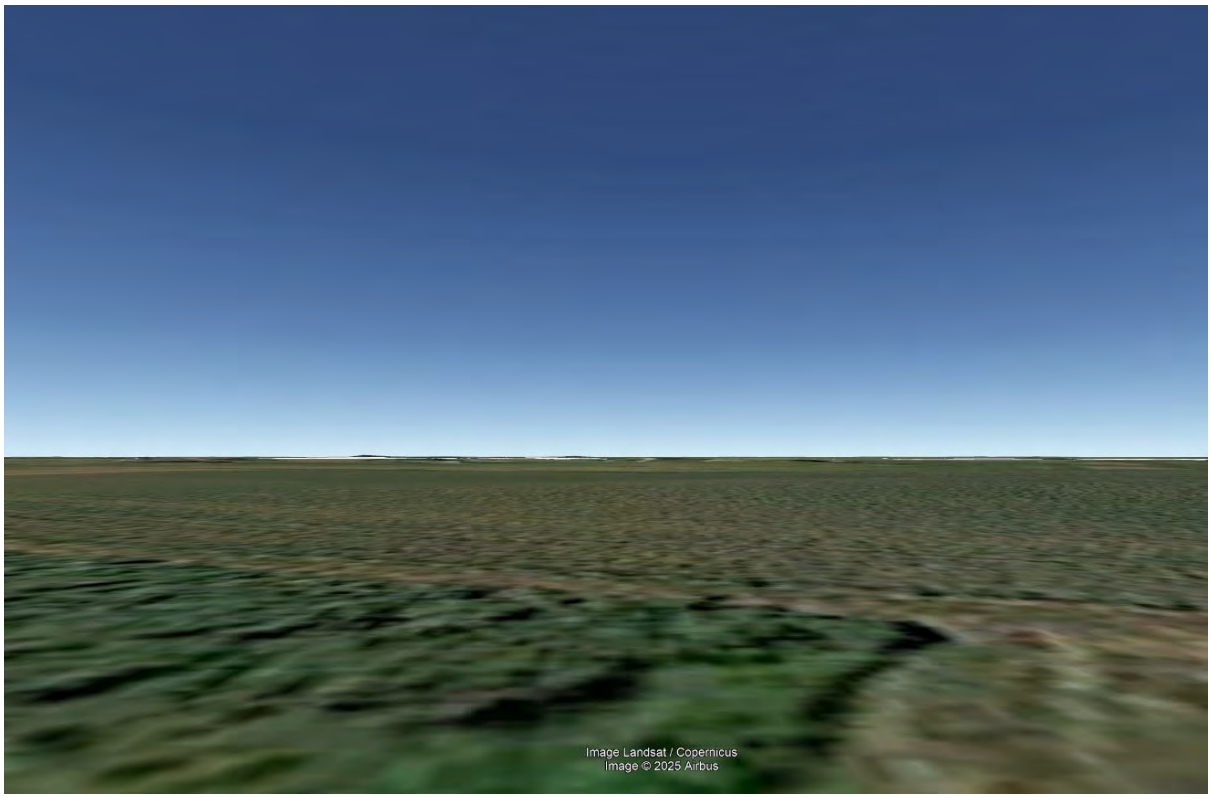


Receptor 111

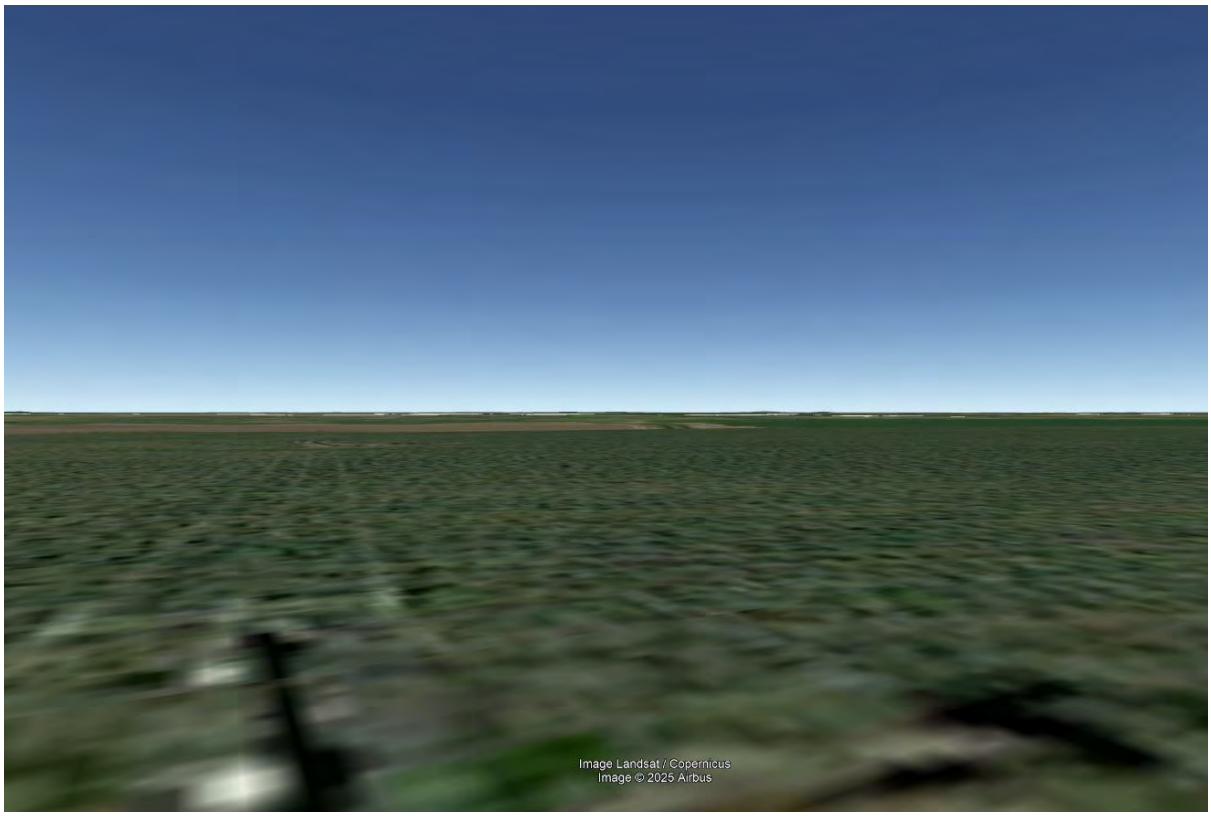
Receptor 112



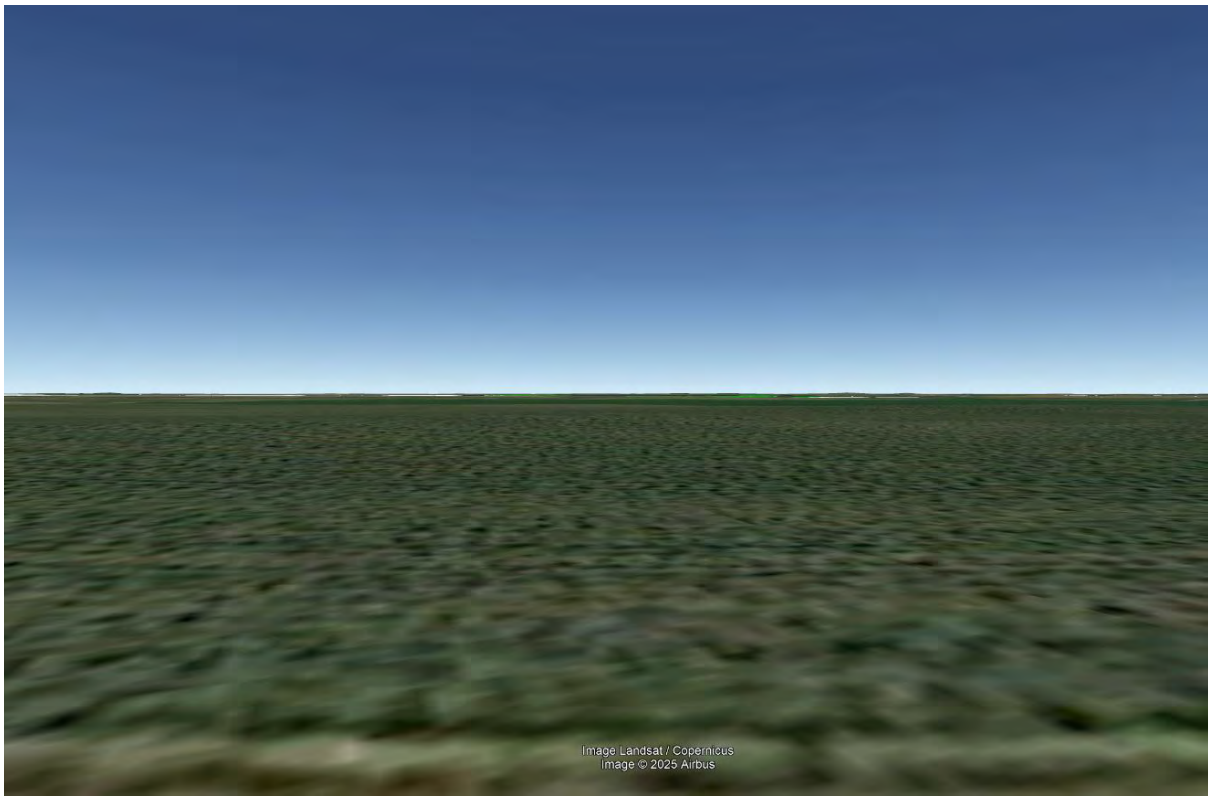
Receptor 113



Receptor 114

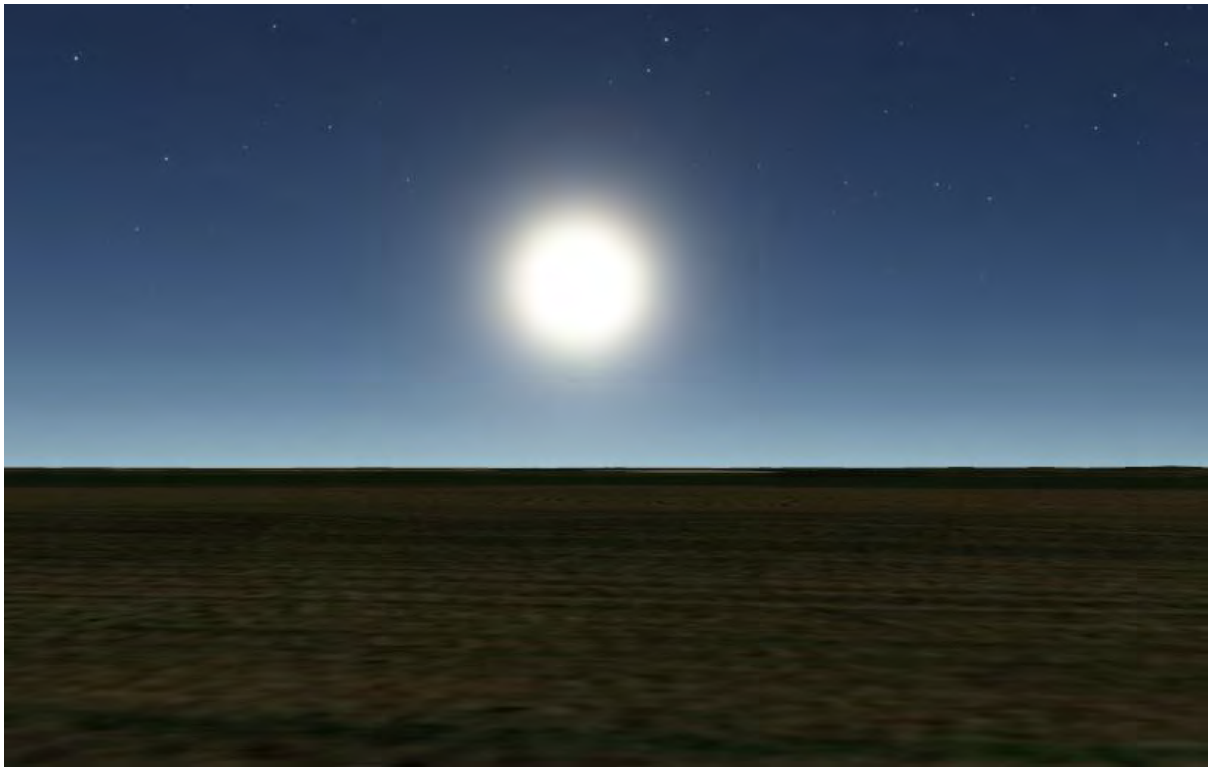


Receptor 115

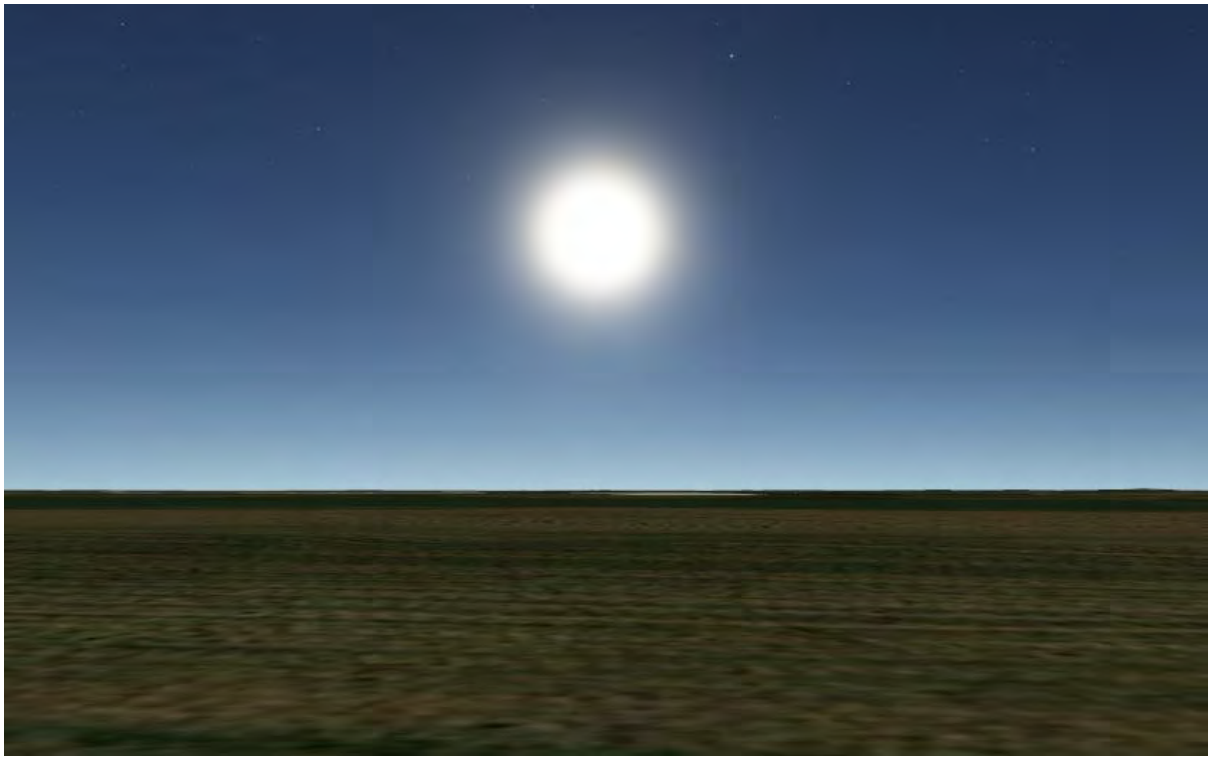


Receptor 116

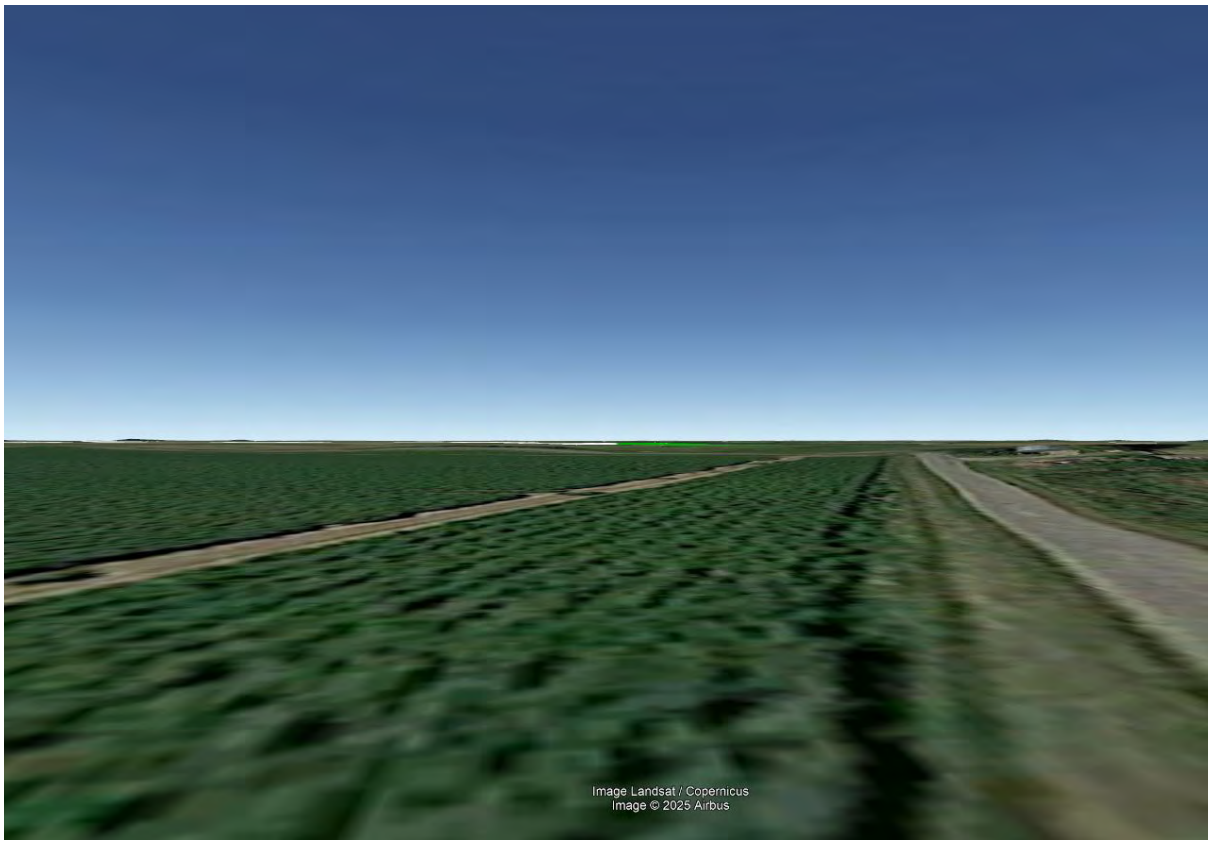
April 15th 18:00 UTC



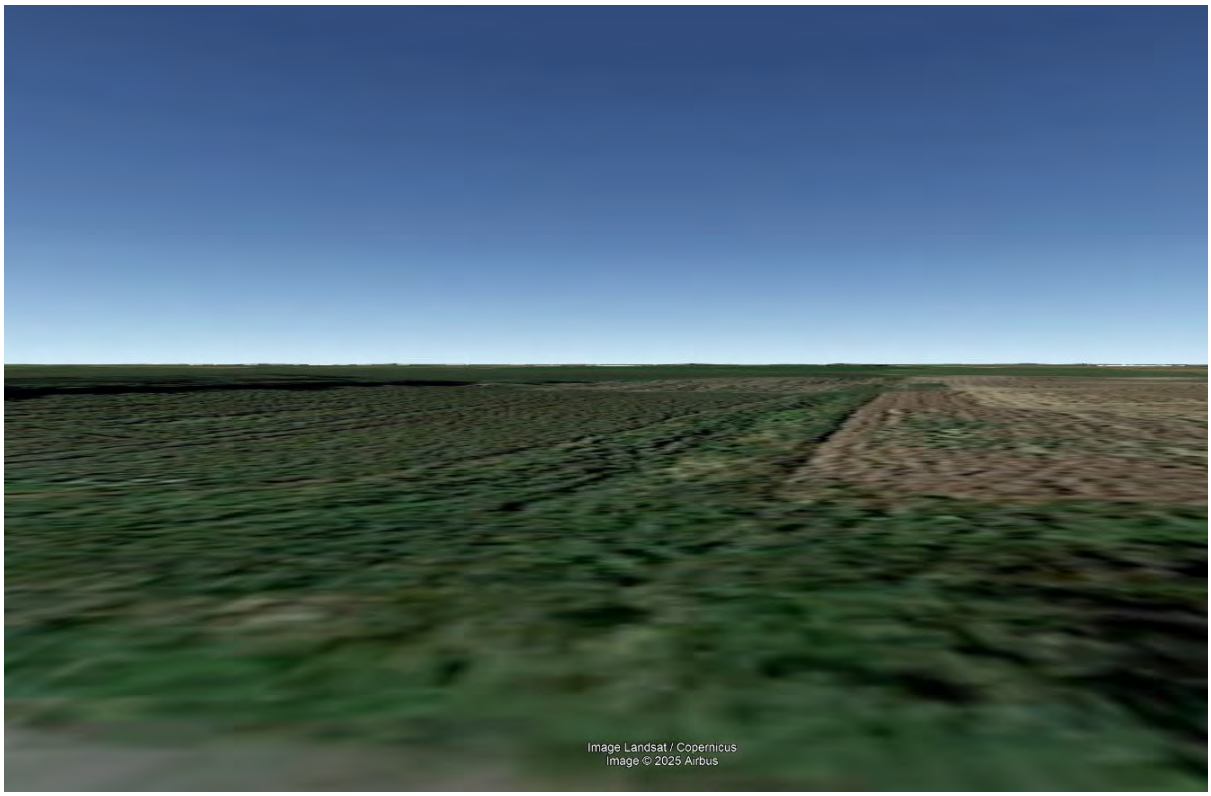
August 15th 18:00 UTC



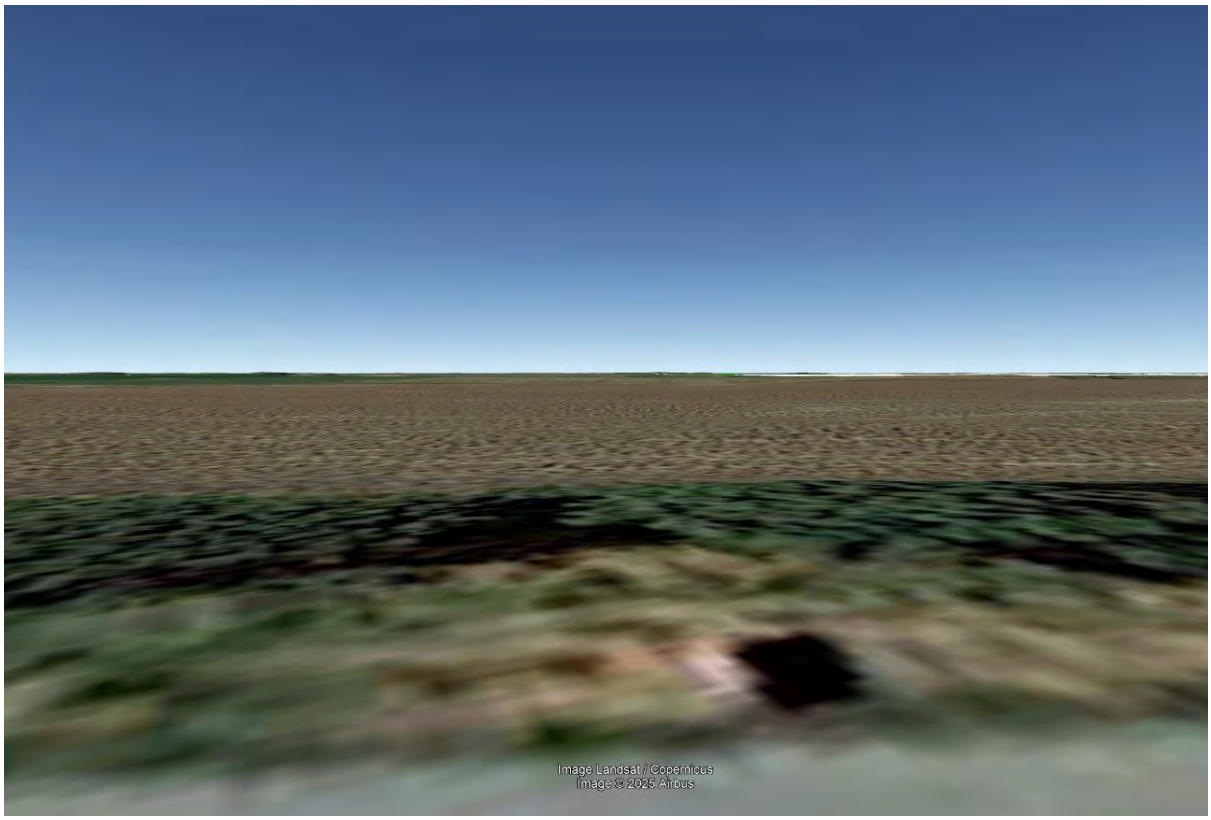
Receptor 117



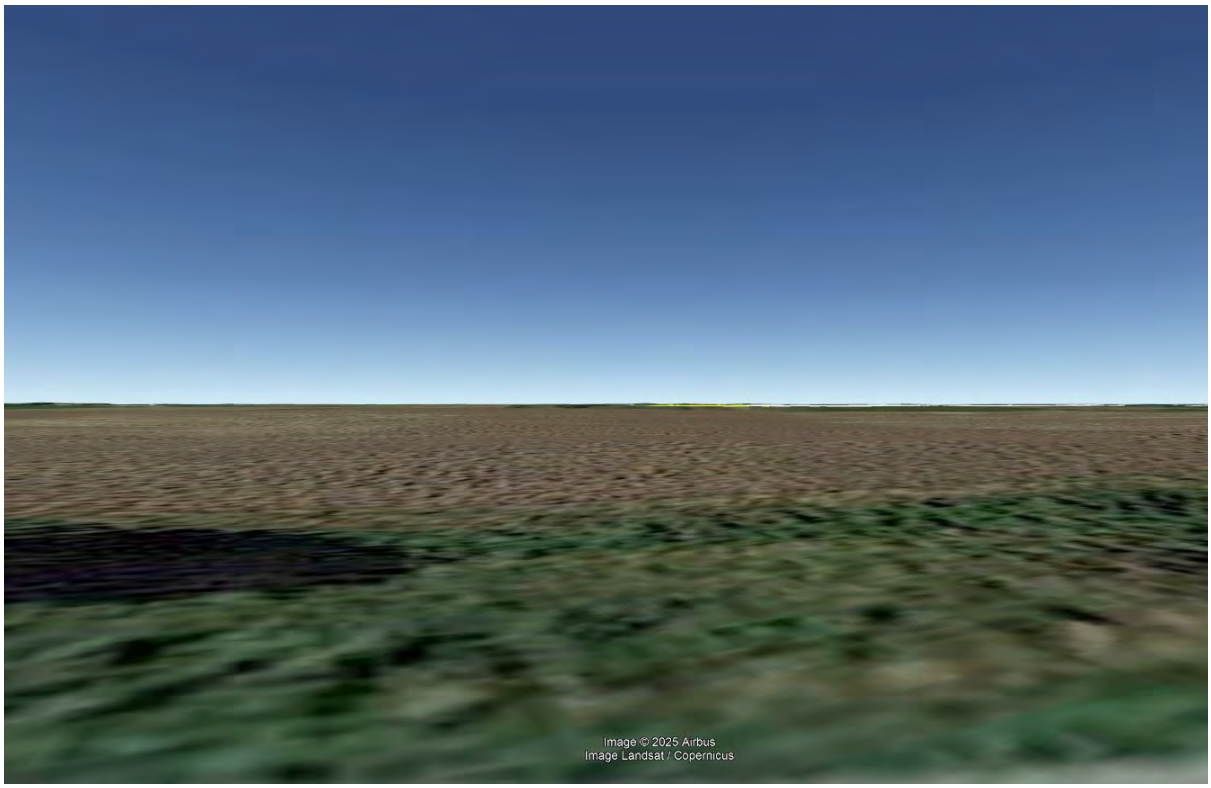
Receptor 118



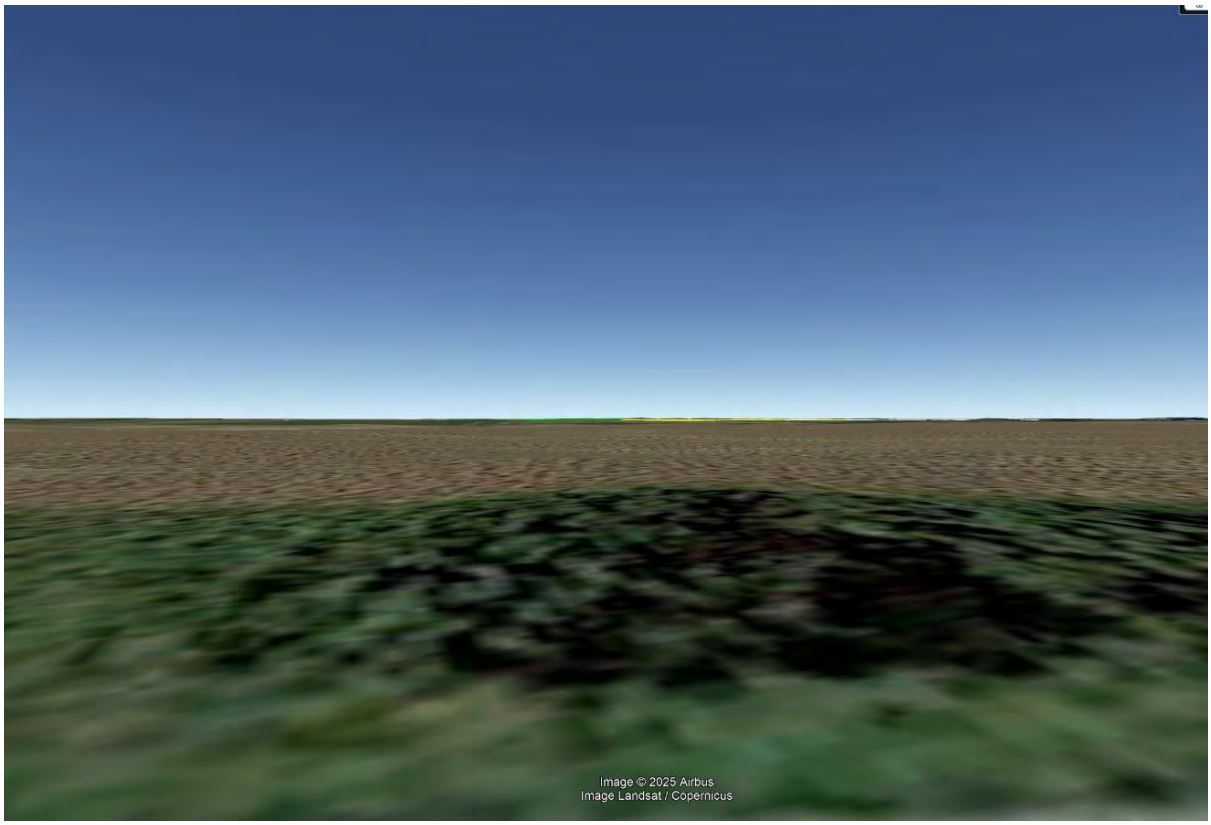
Receptor 119



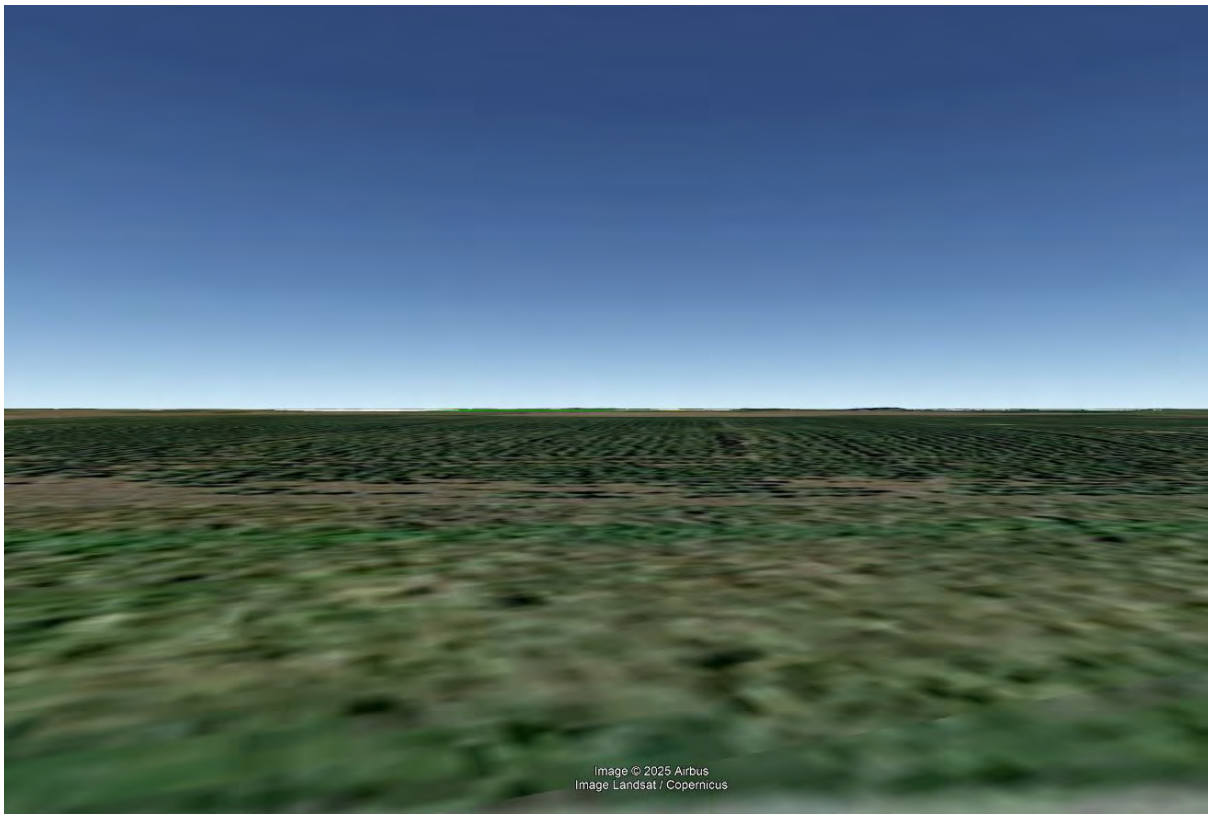
Receptor 120



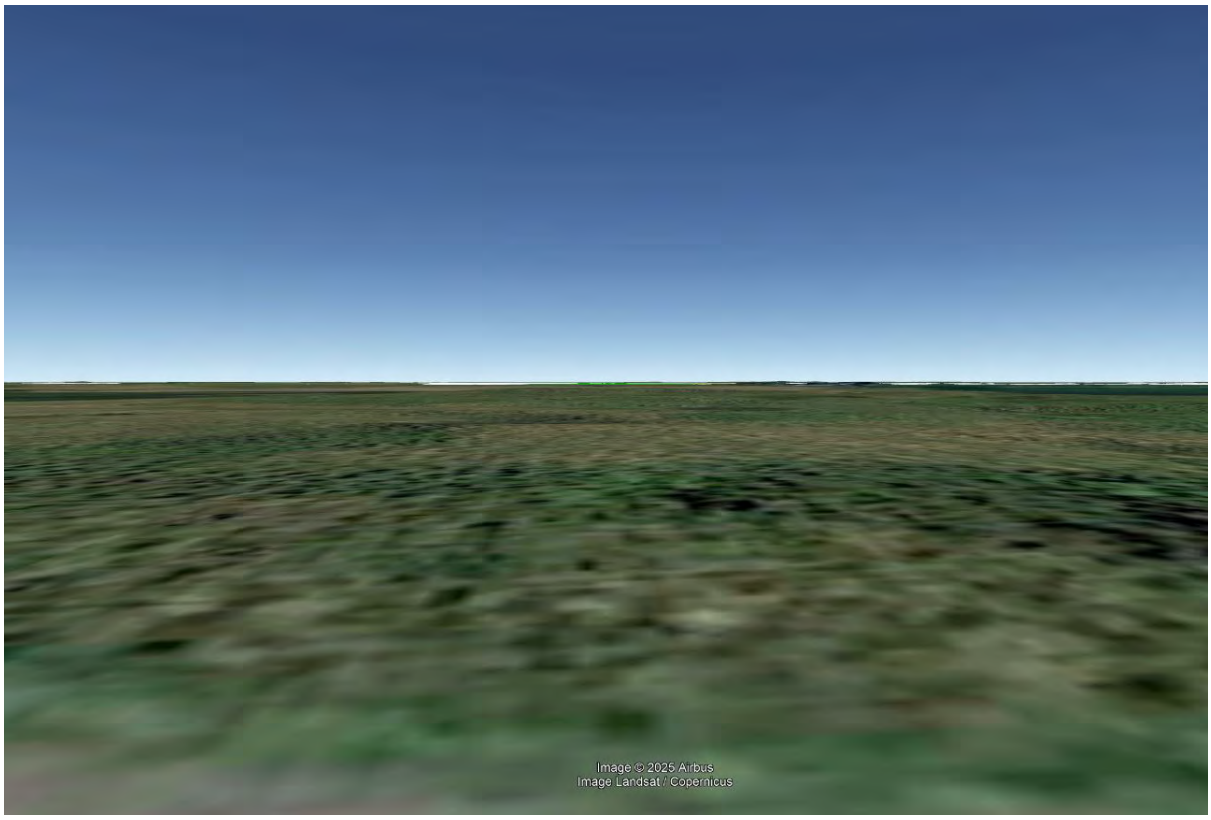
Receptor 121



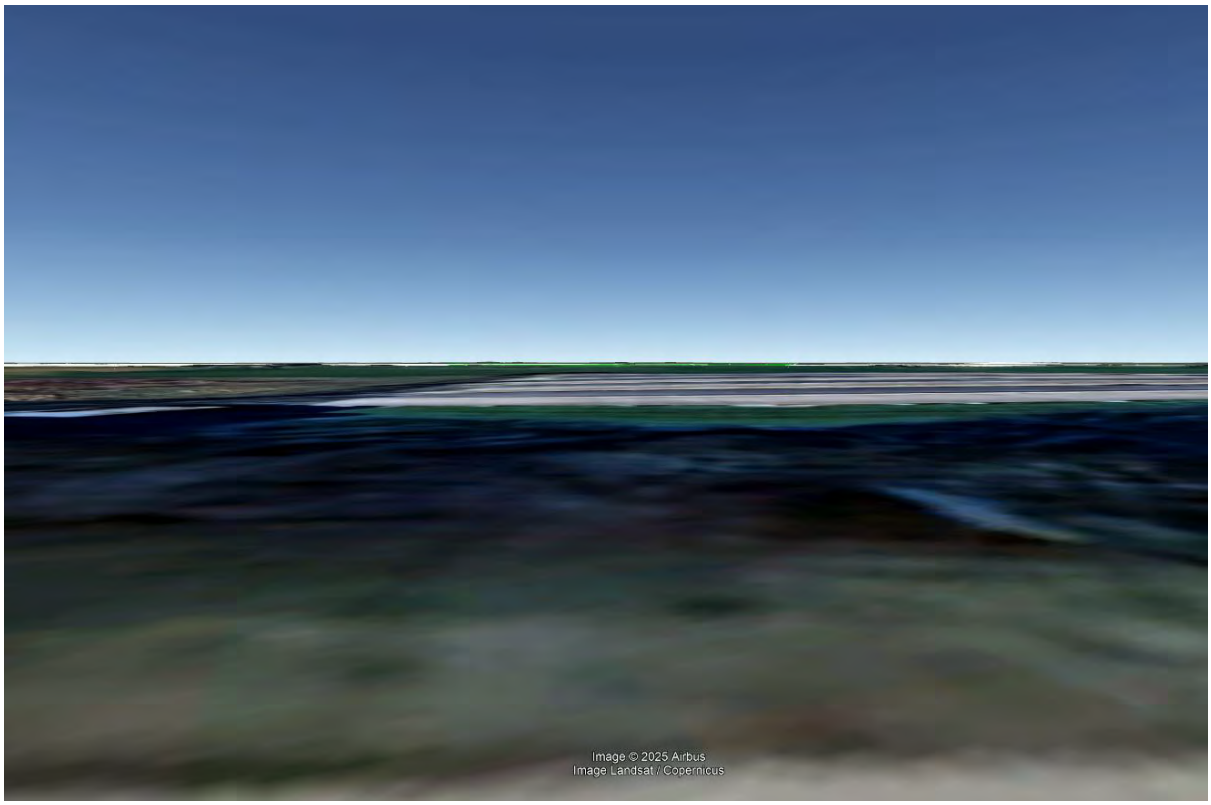
Receptor 122



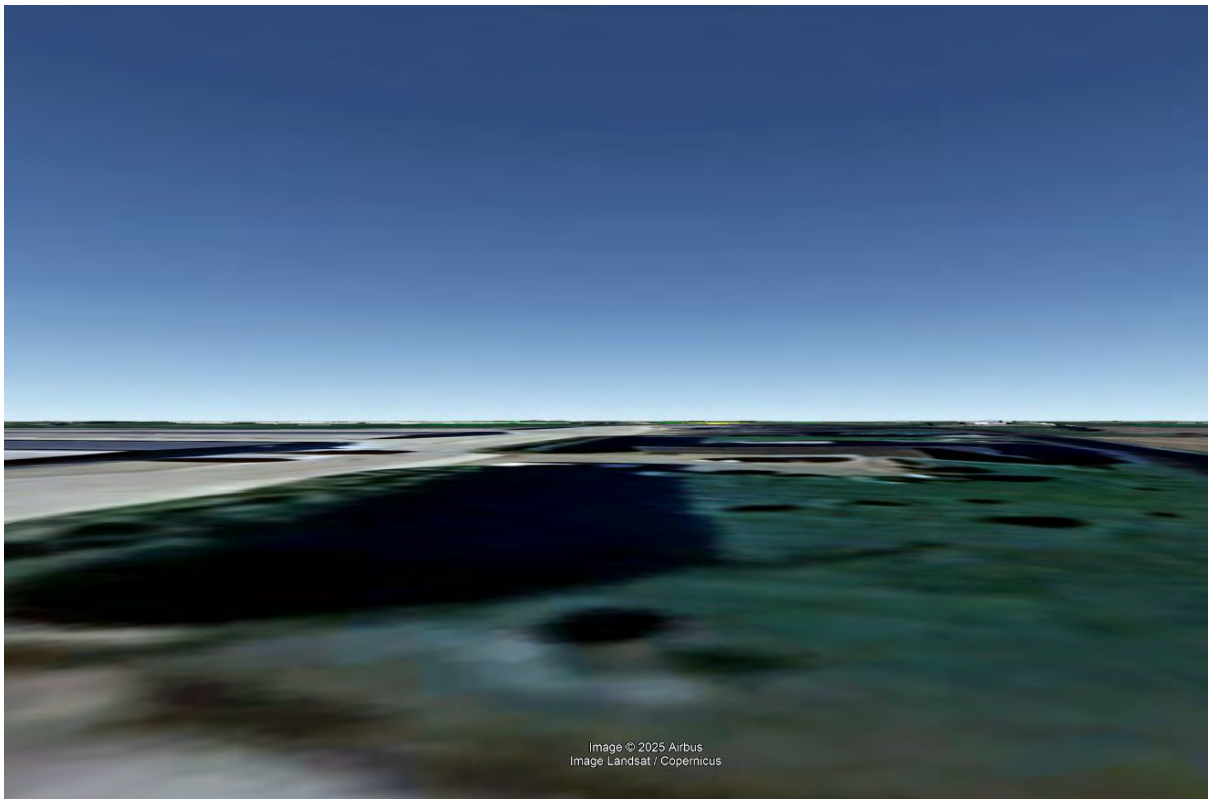
Receptor 123



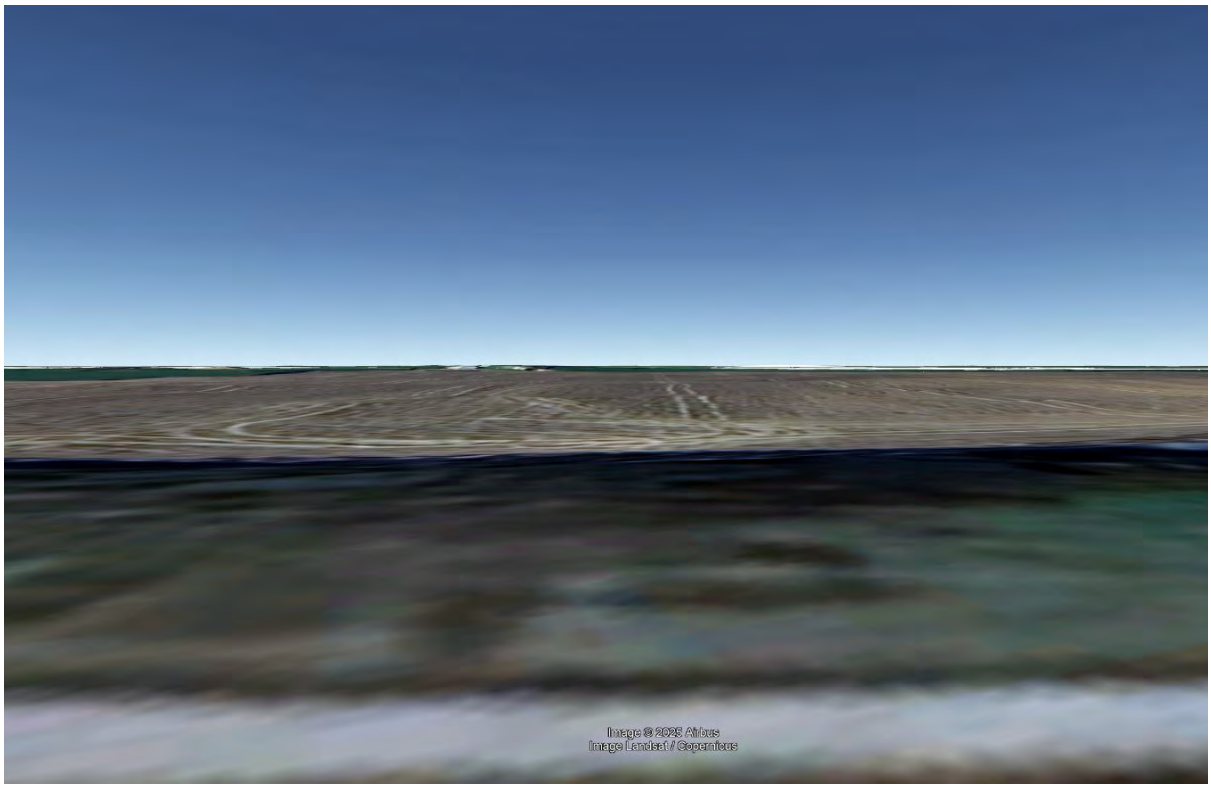
Receptor 124



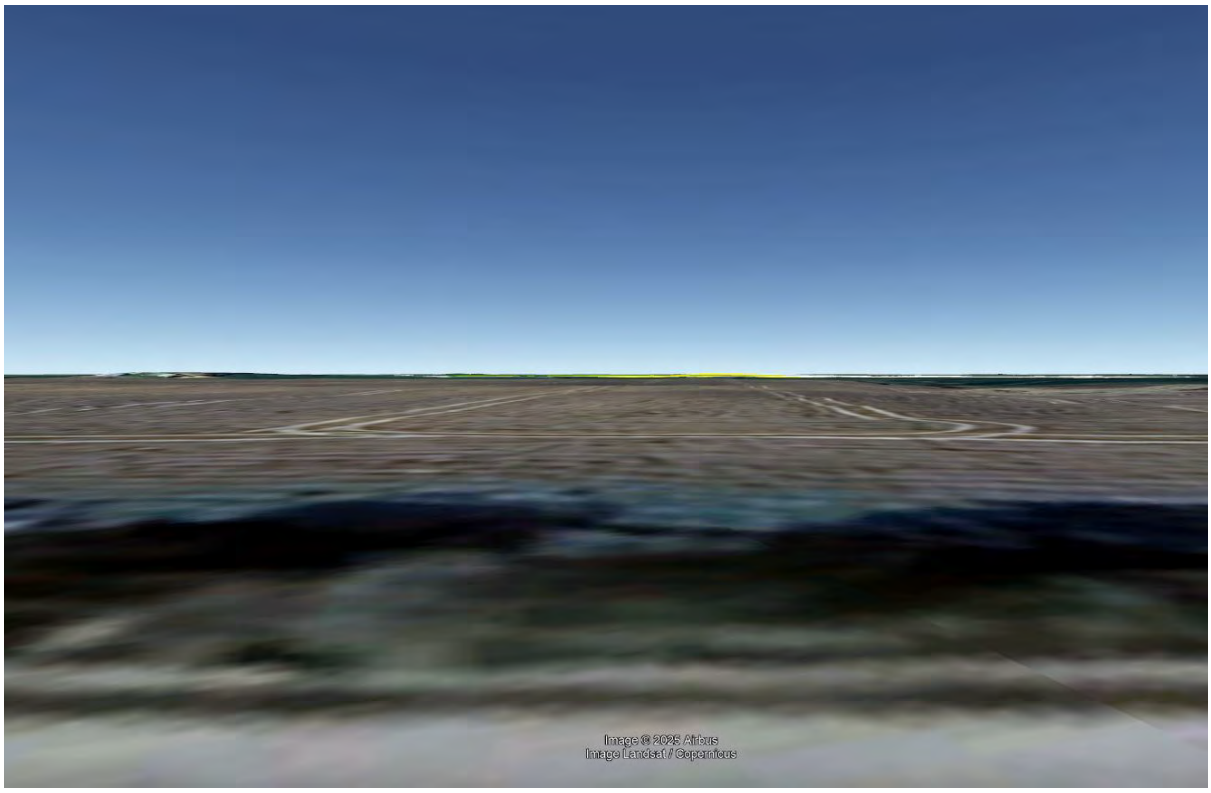
Receptor 125



Receptor 126

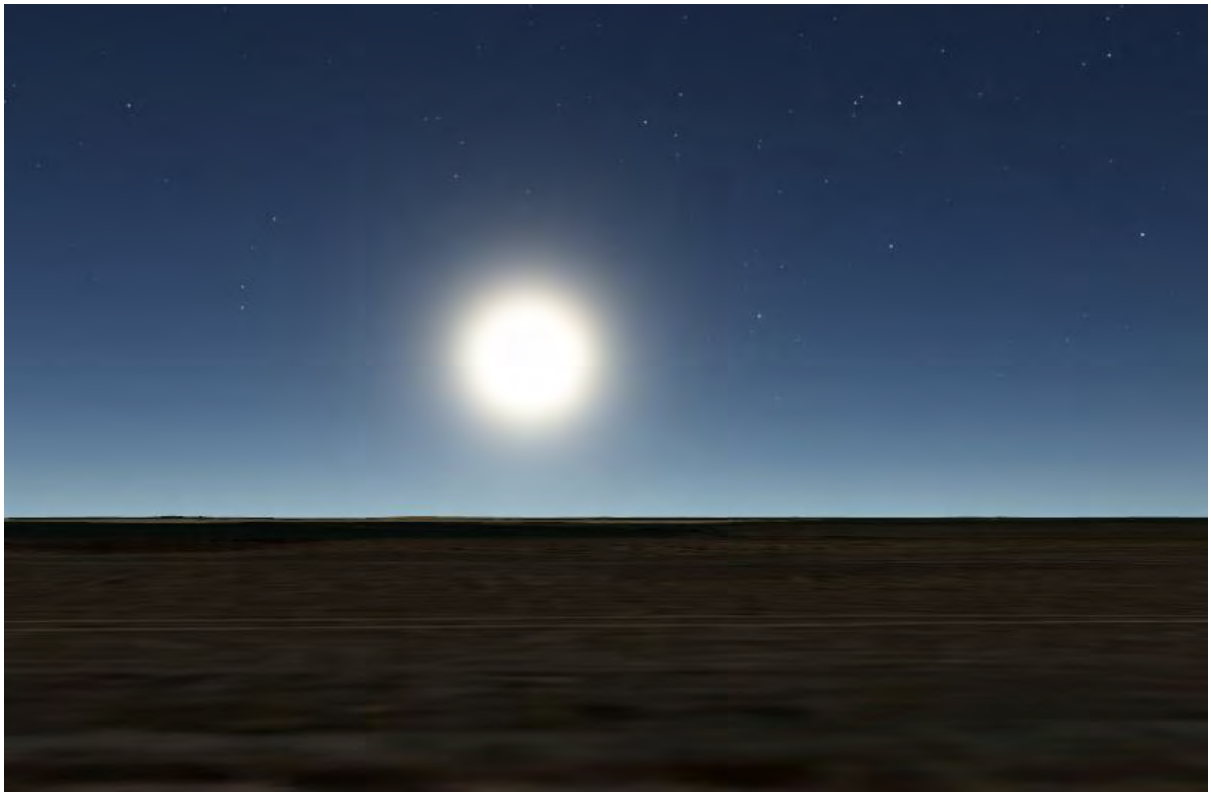


Receptor 127

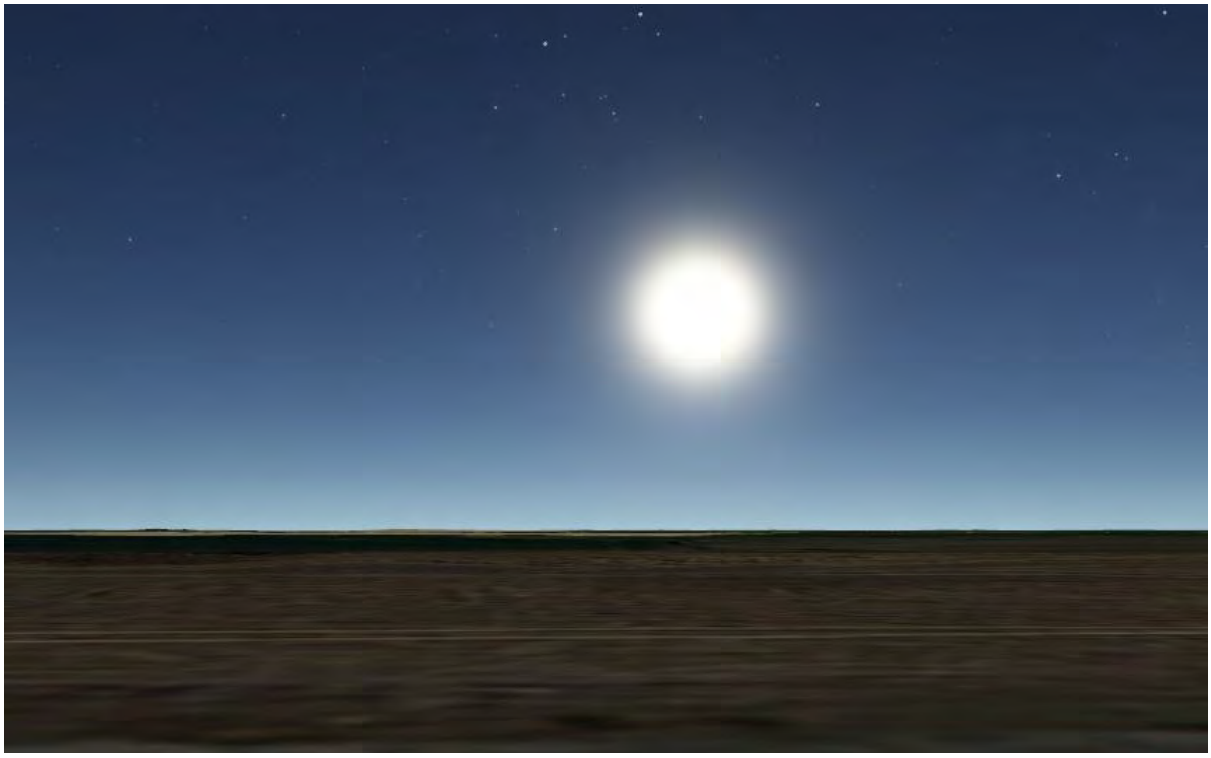


Receptor 128

May 1st 18:30 UTC

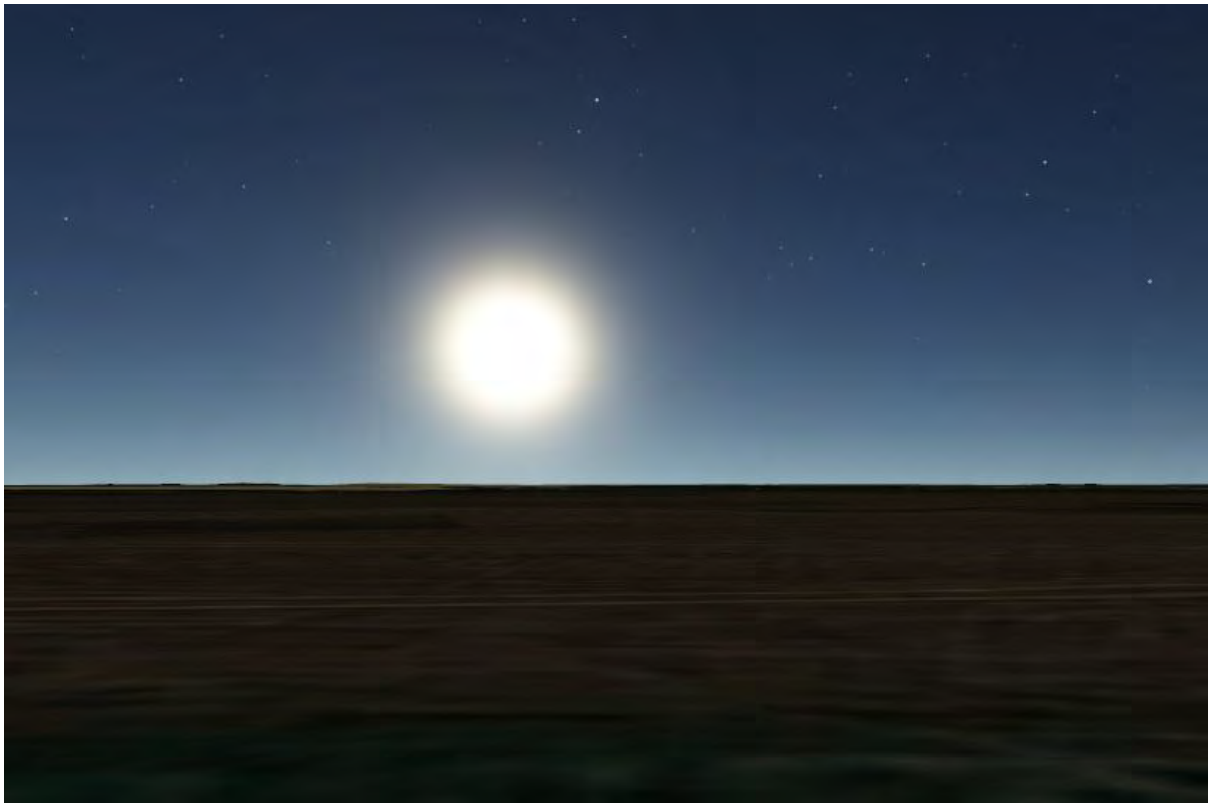


July 1st 19:00 UTC

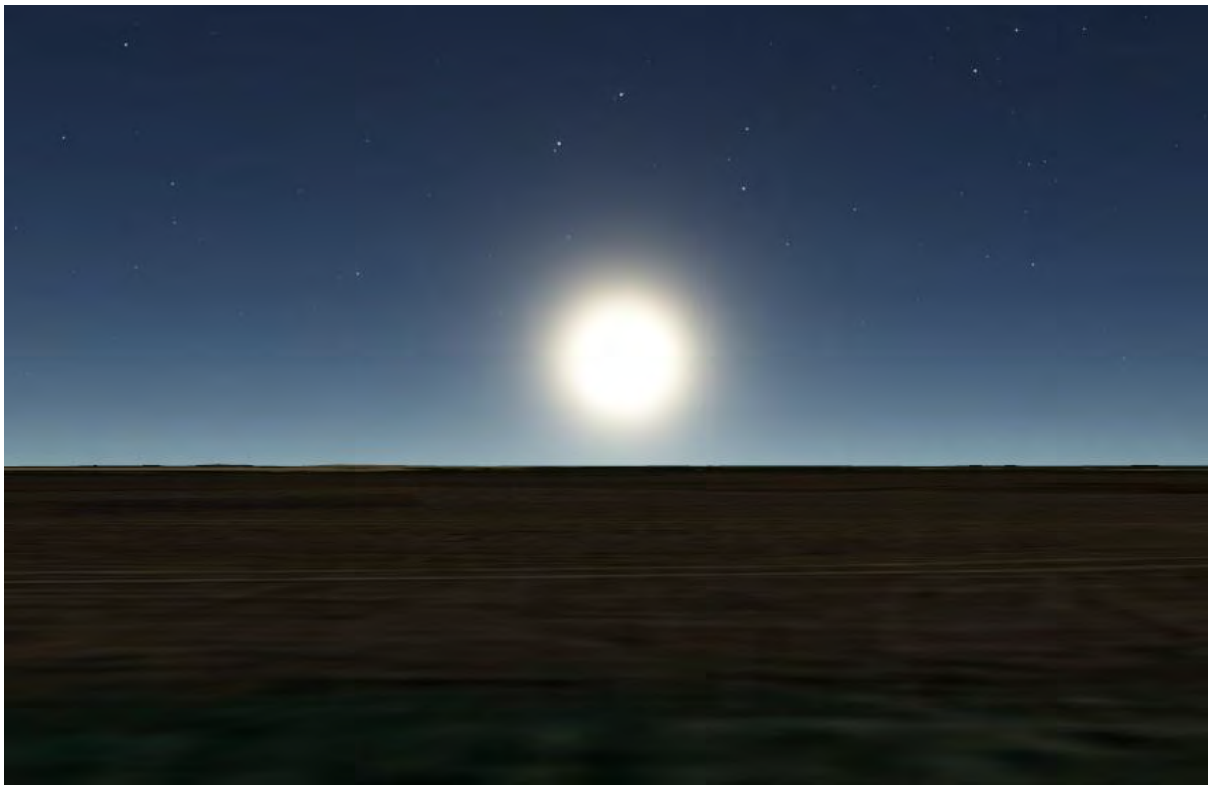


Receptor 129

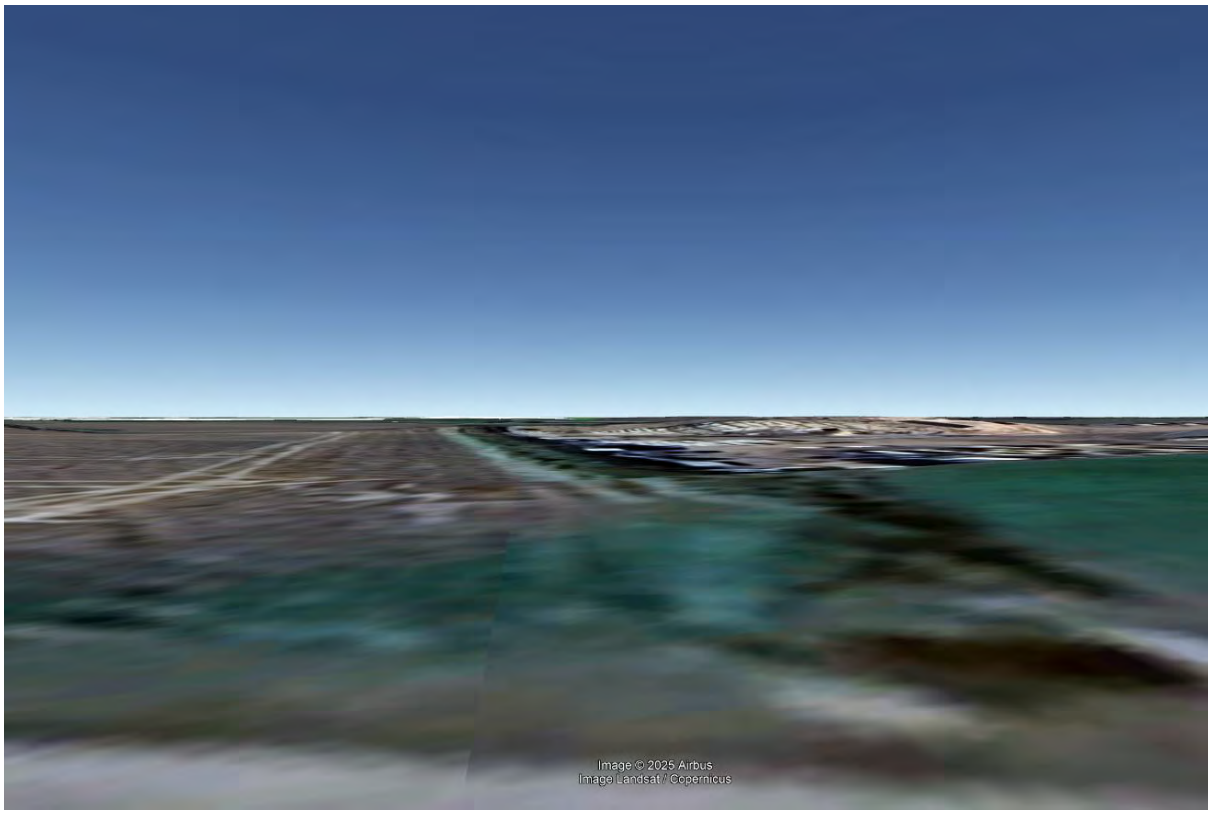
April 15th 18:15 UTC



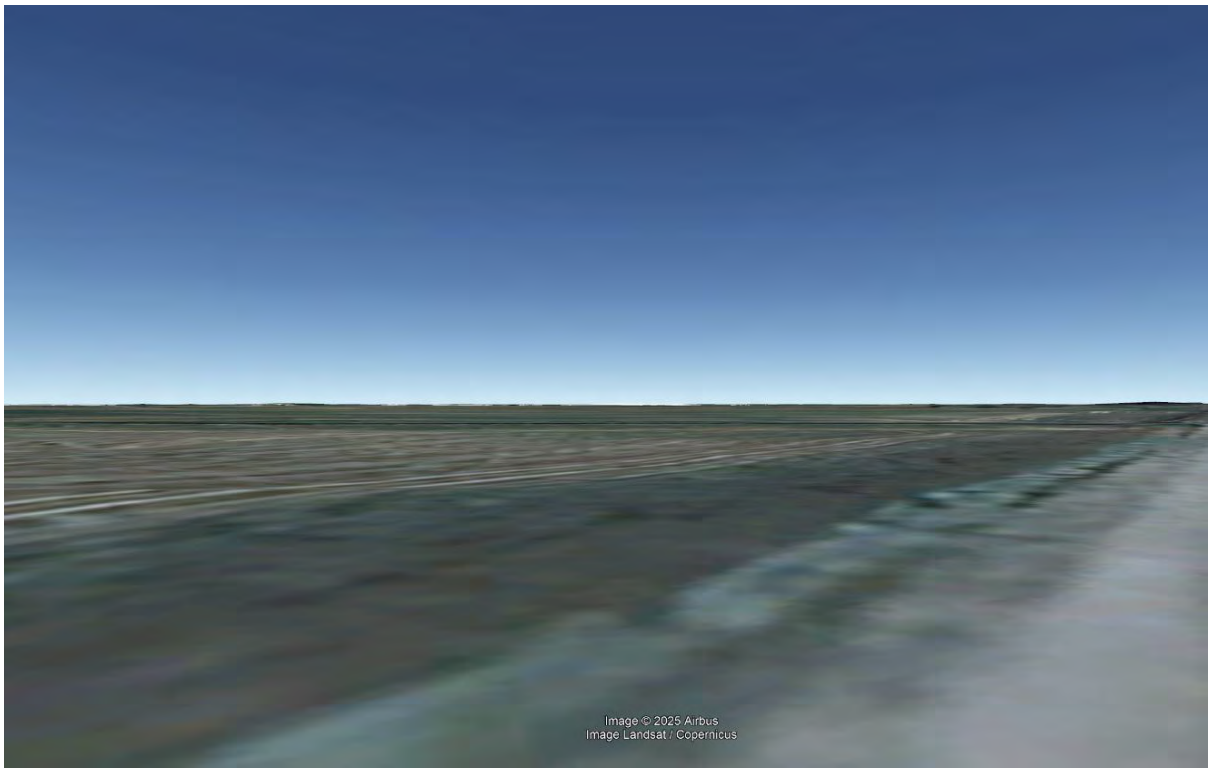
August 15th 18:45 UTC



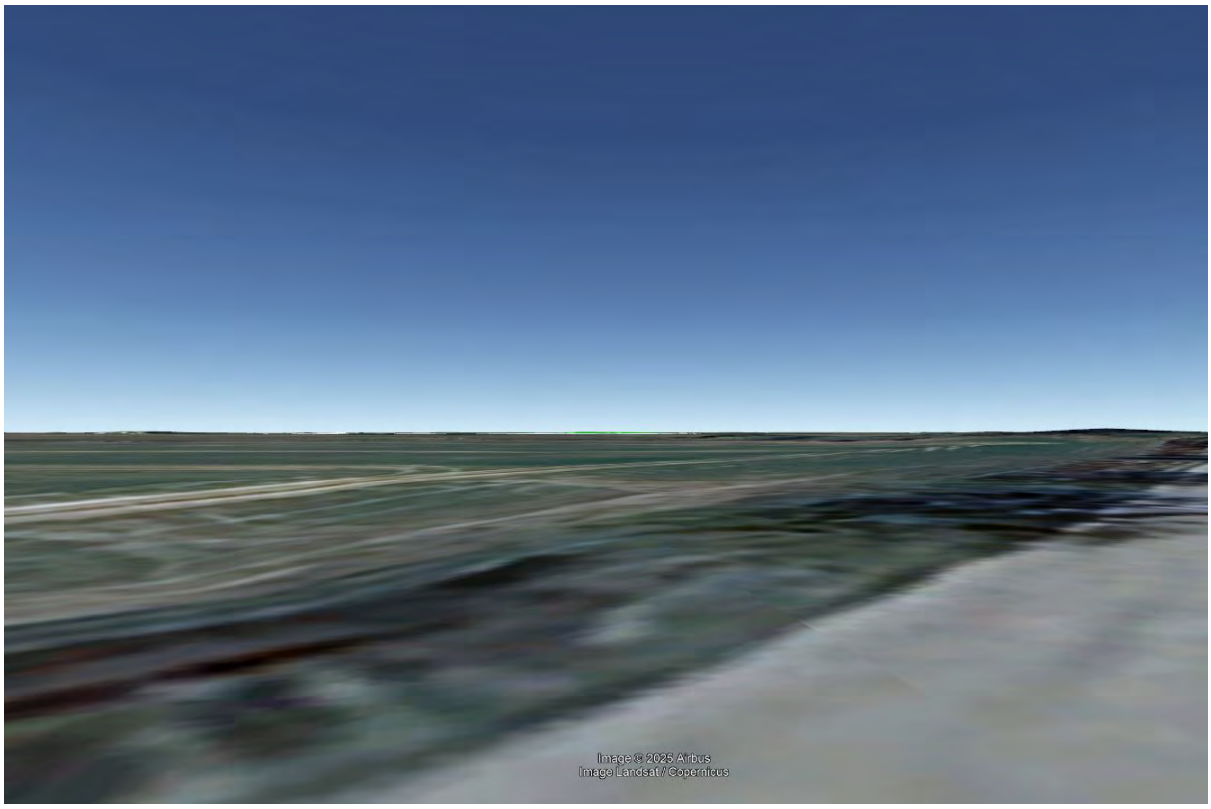
Receptor 130



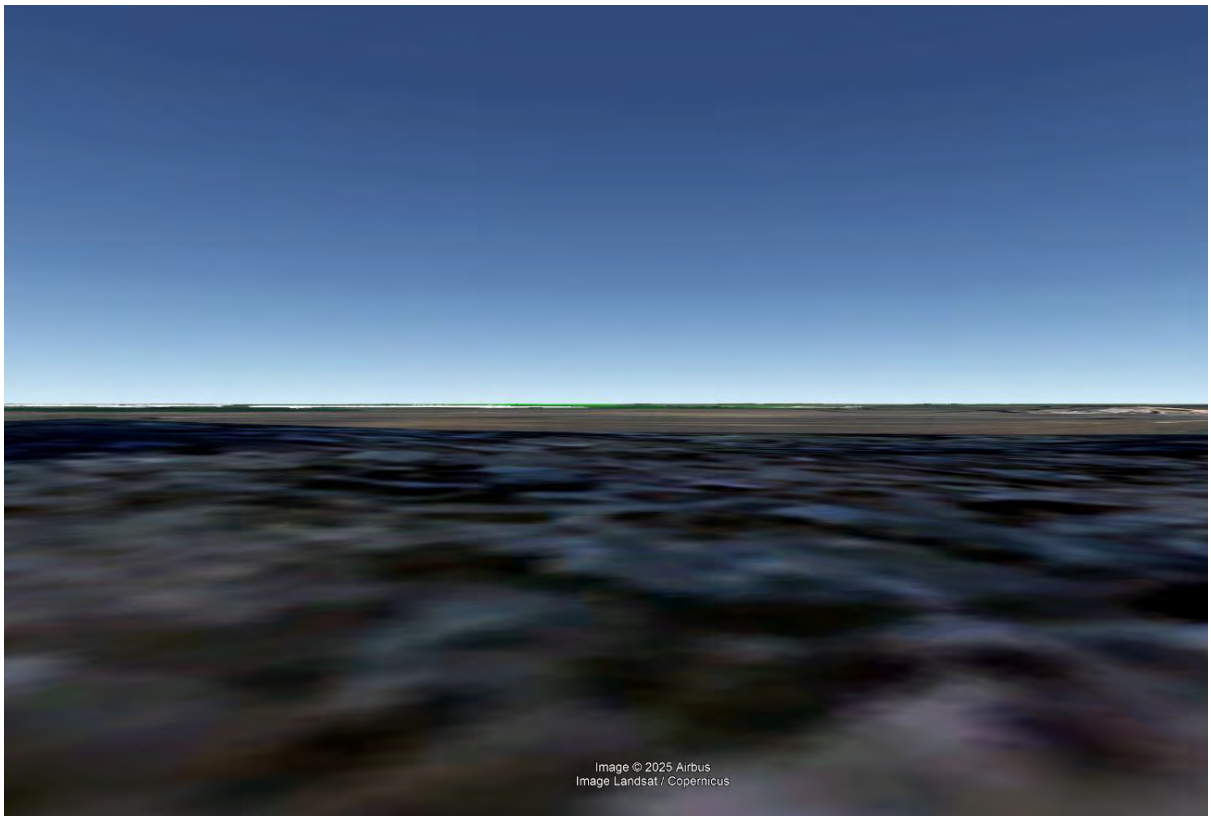
Receptor 131



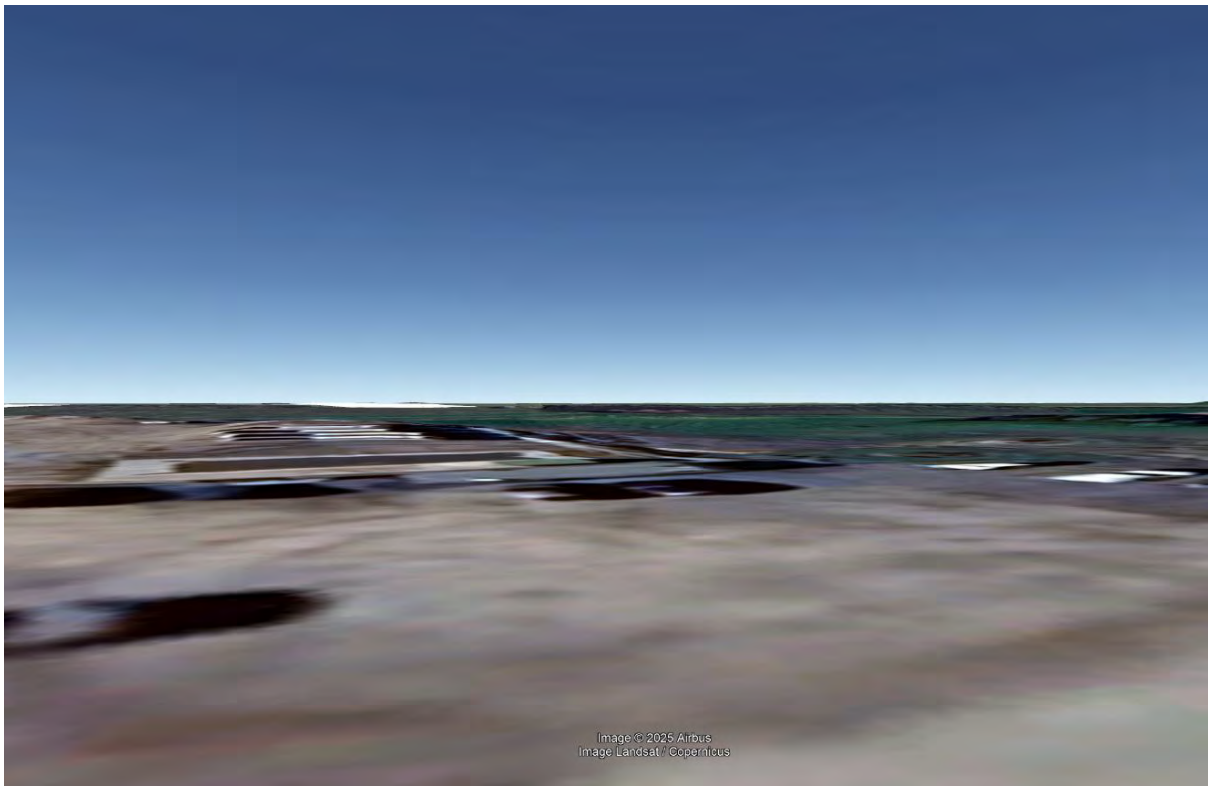
Receptor 132



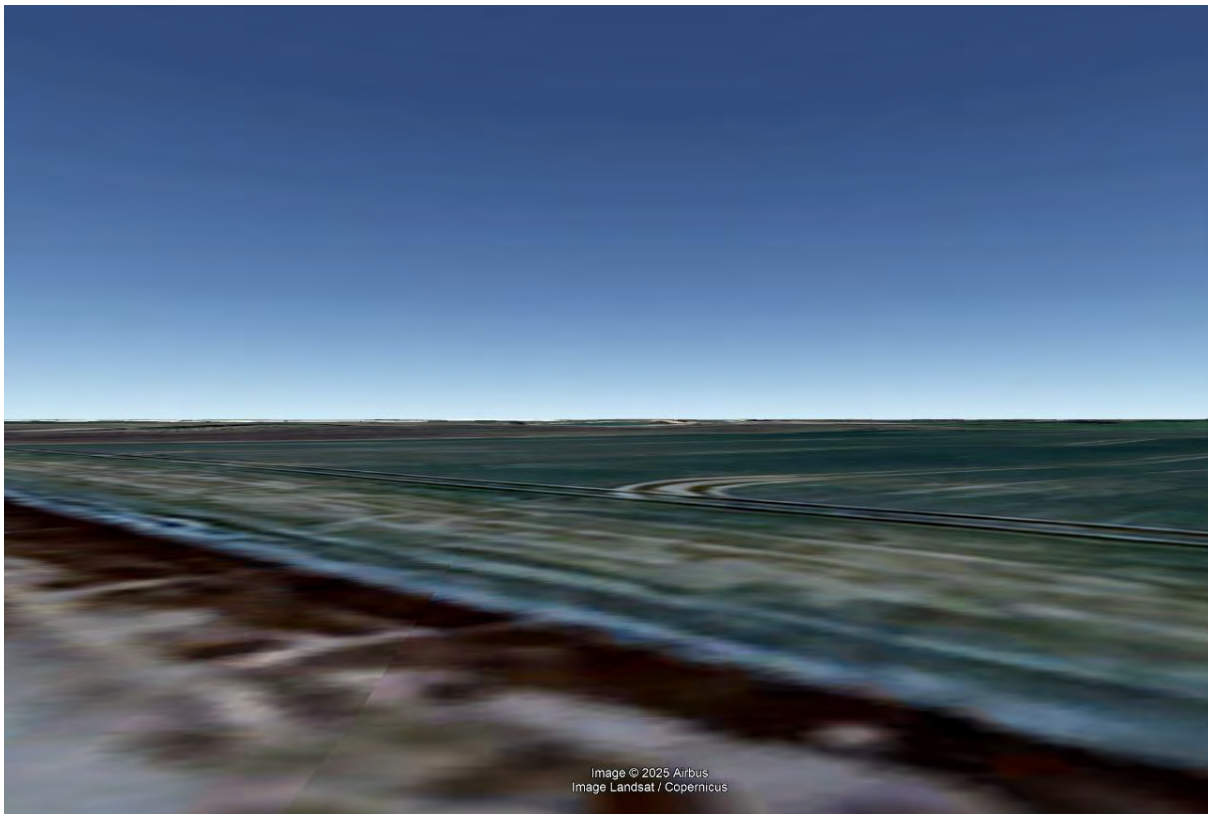
Receptor 133



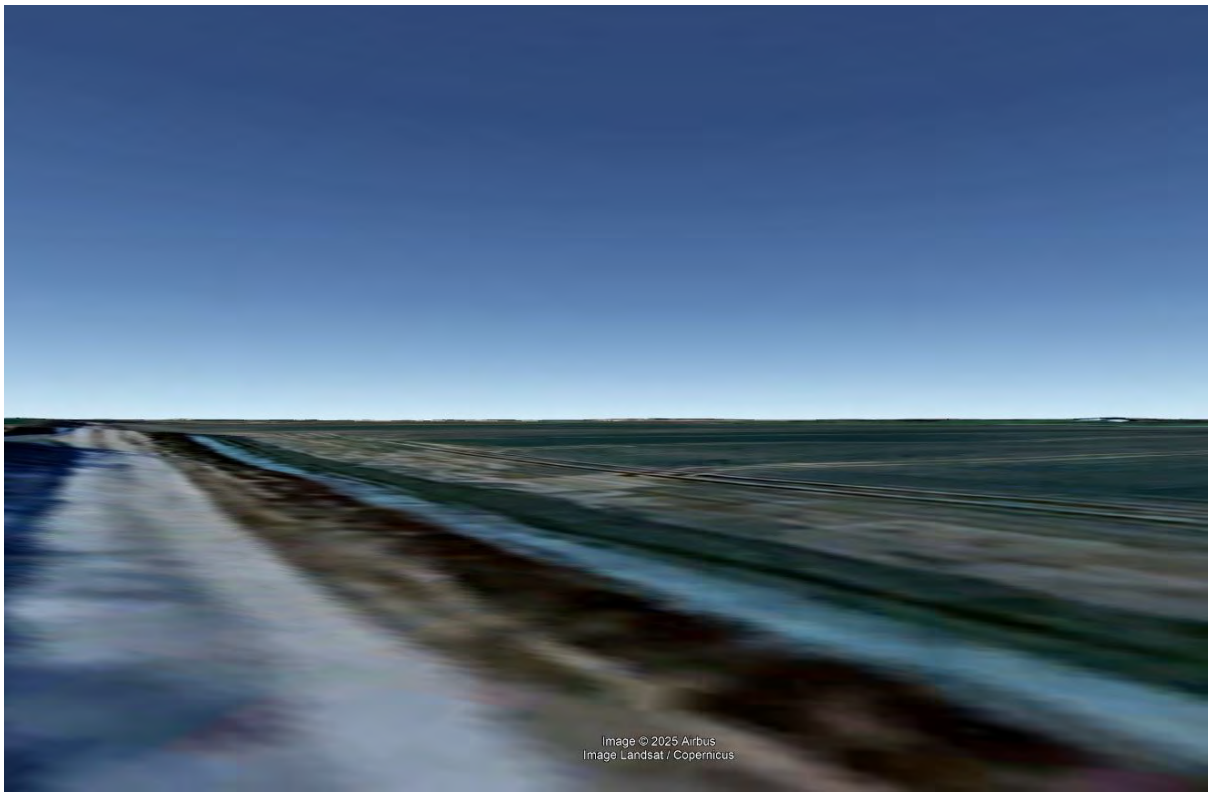
Receptor 134



Receptor 137



Receptor 138



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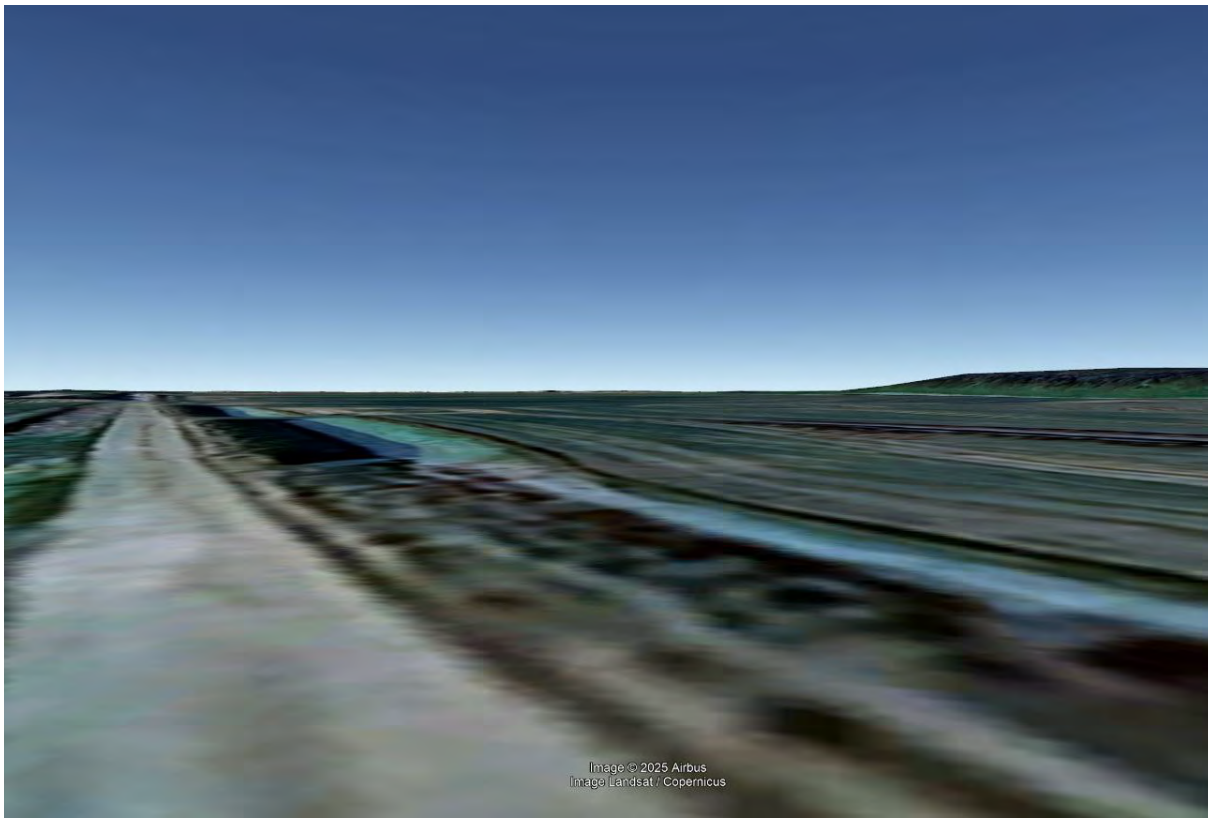

East Bridleway Receptors – Land Parcels D

Receptor 1

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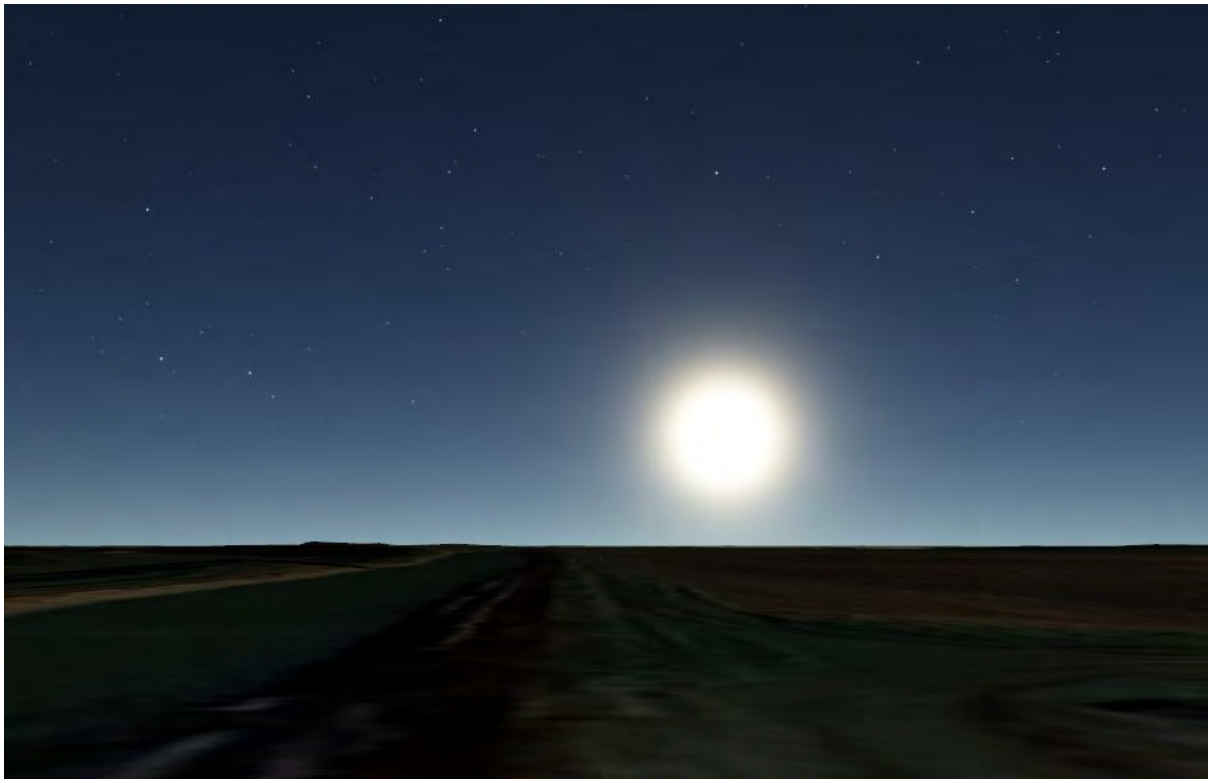

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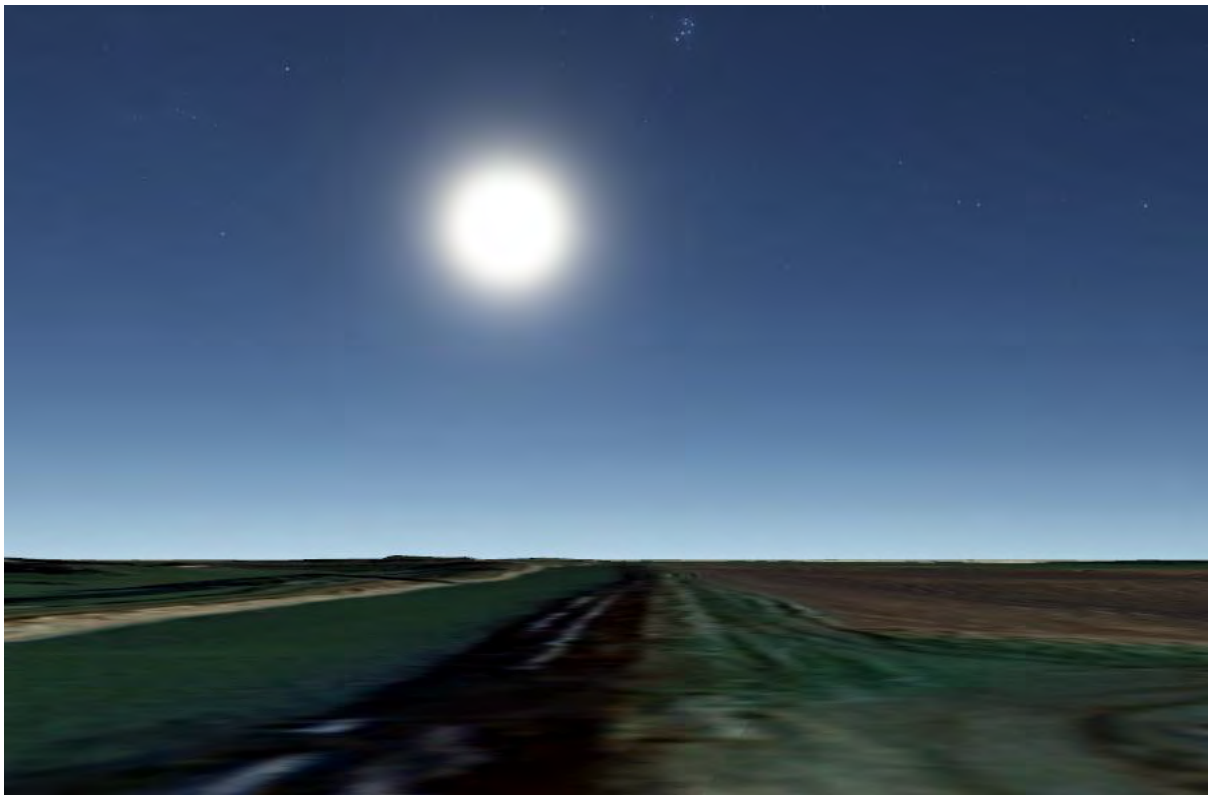

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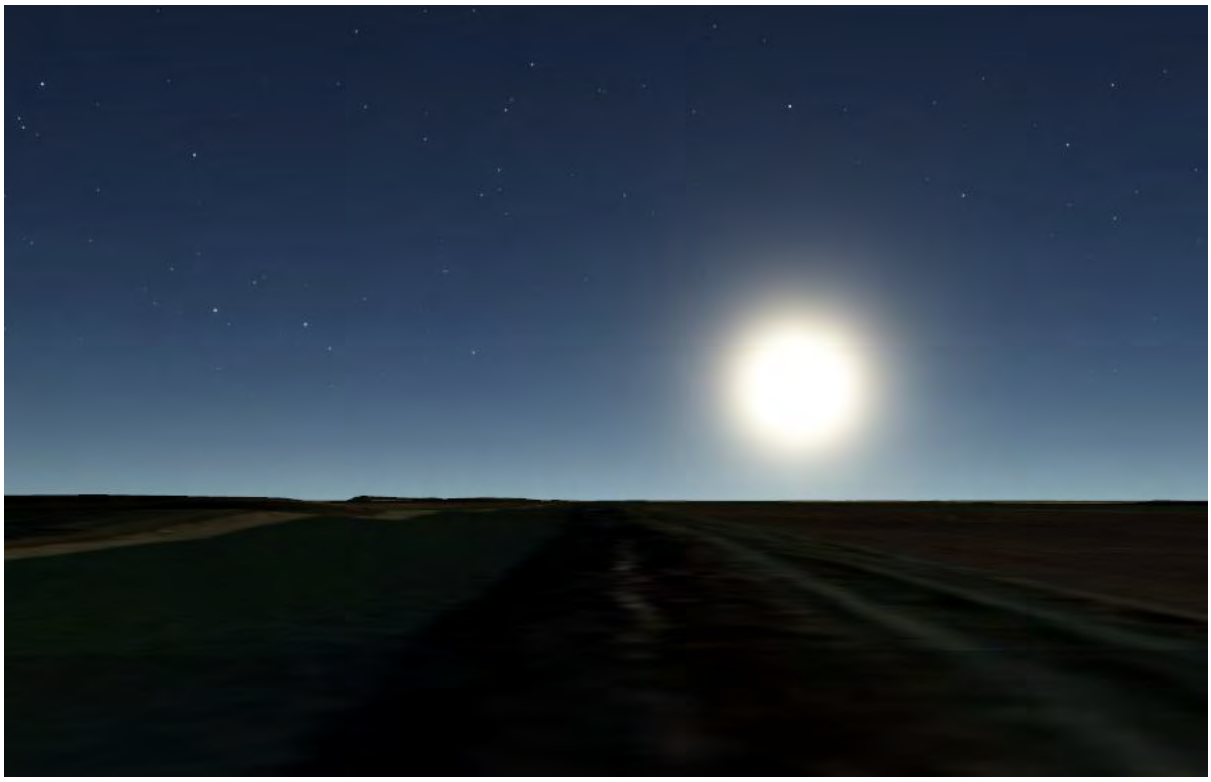

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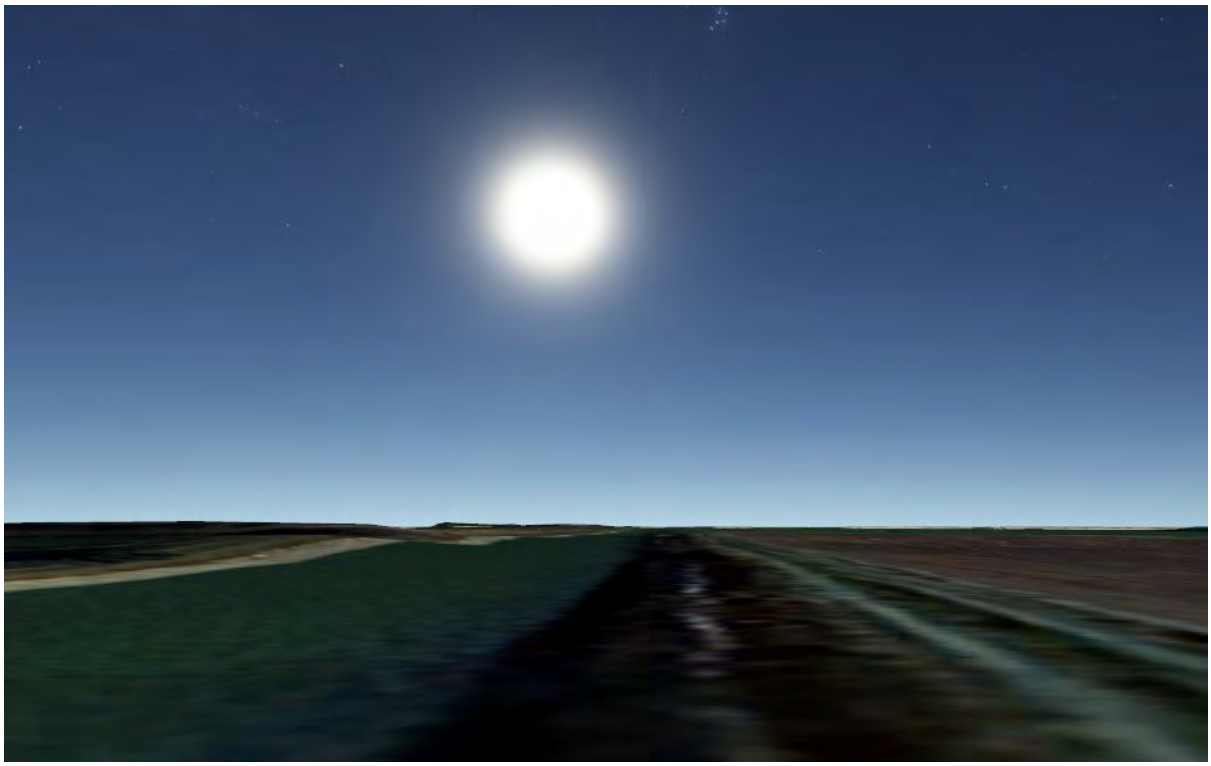

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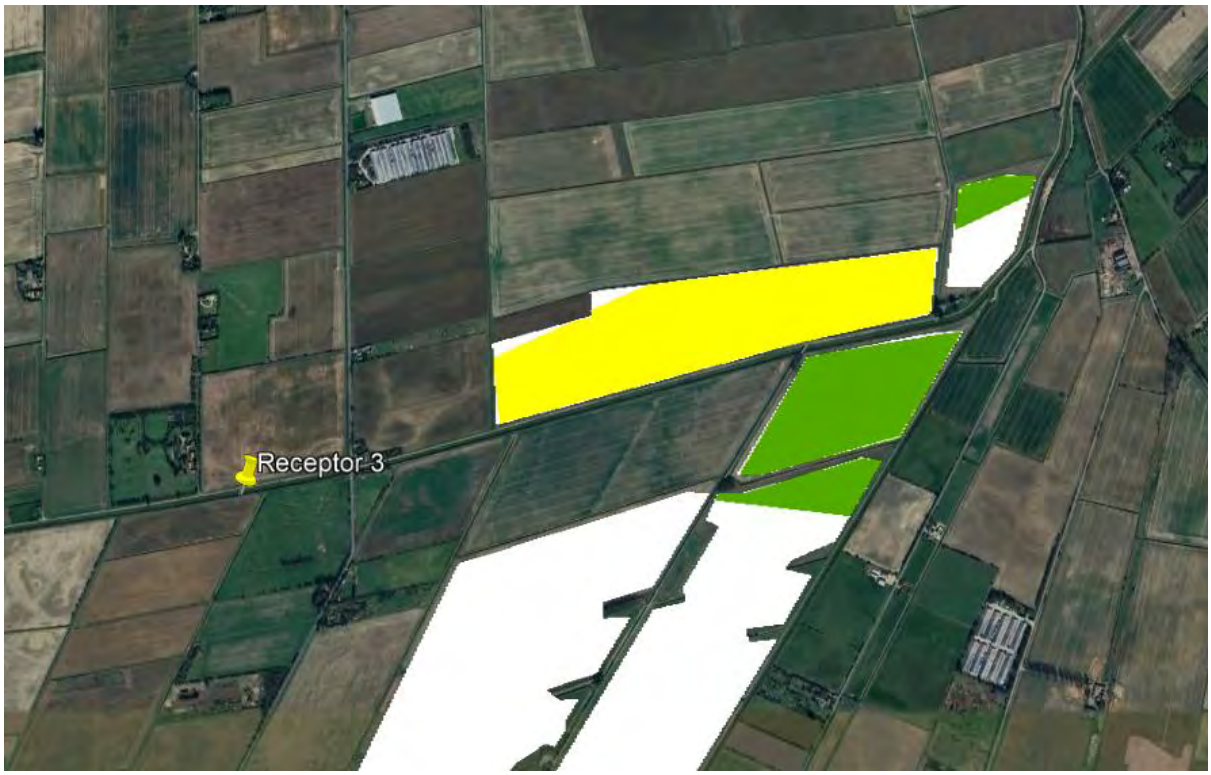

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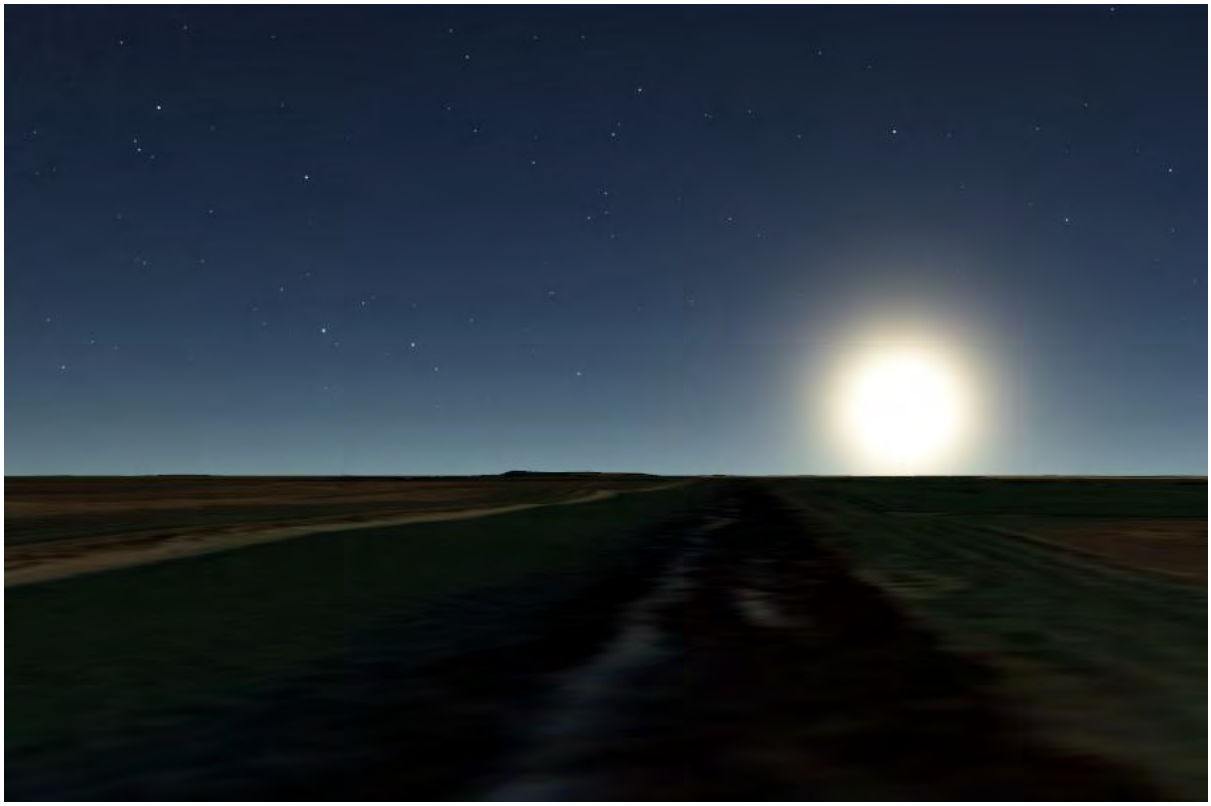

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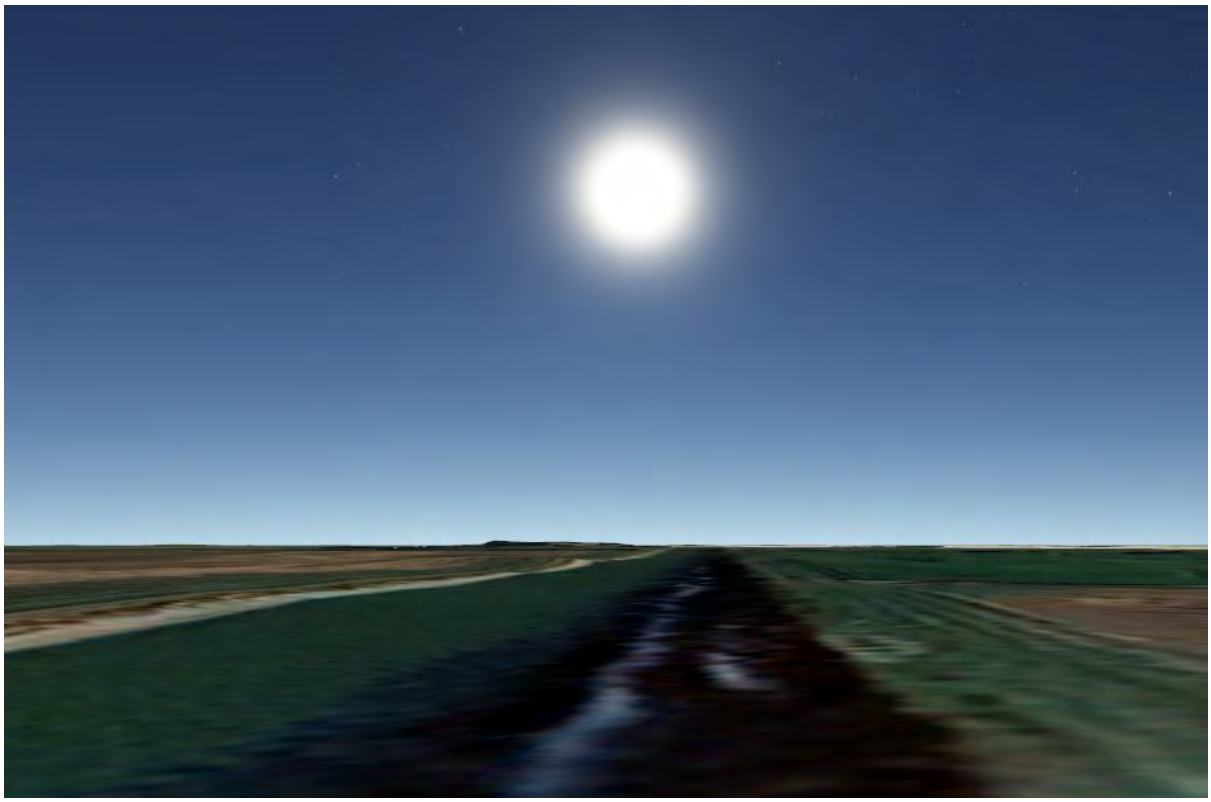

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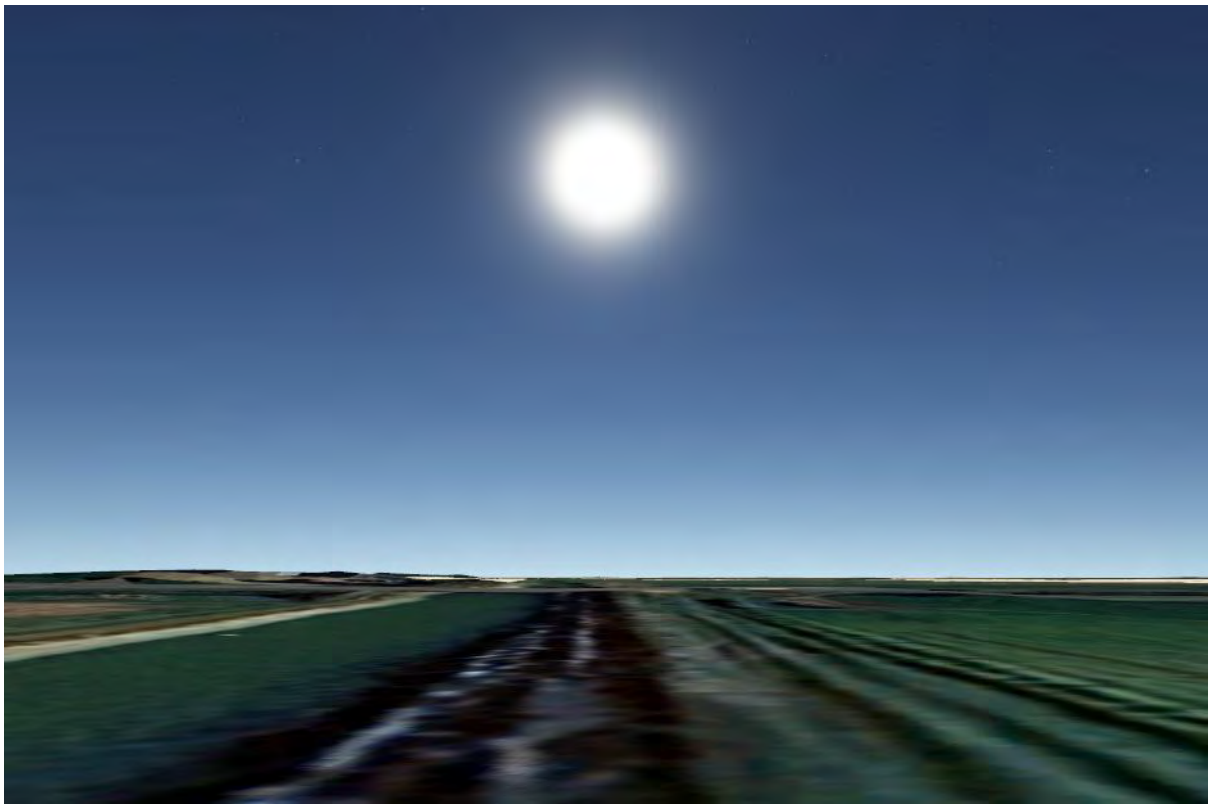

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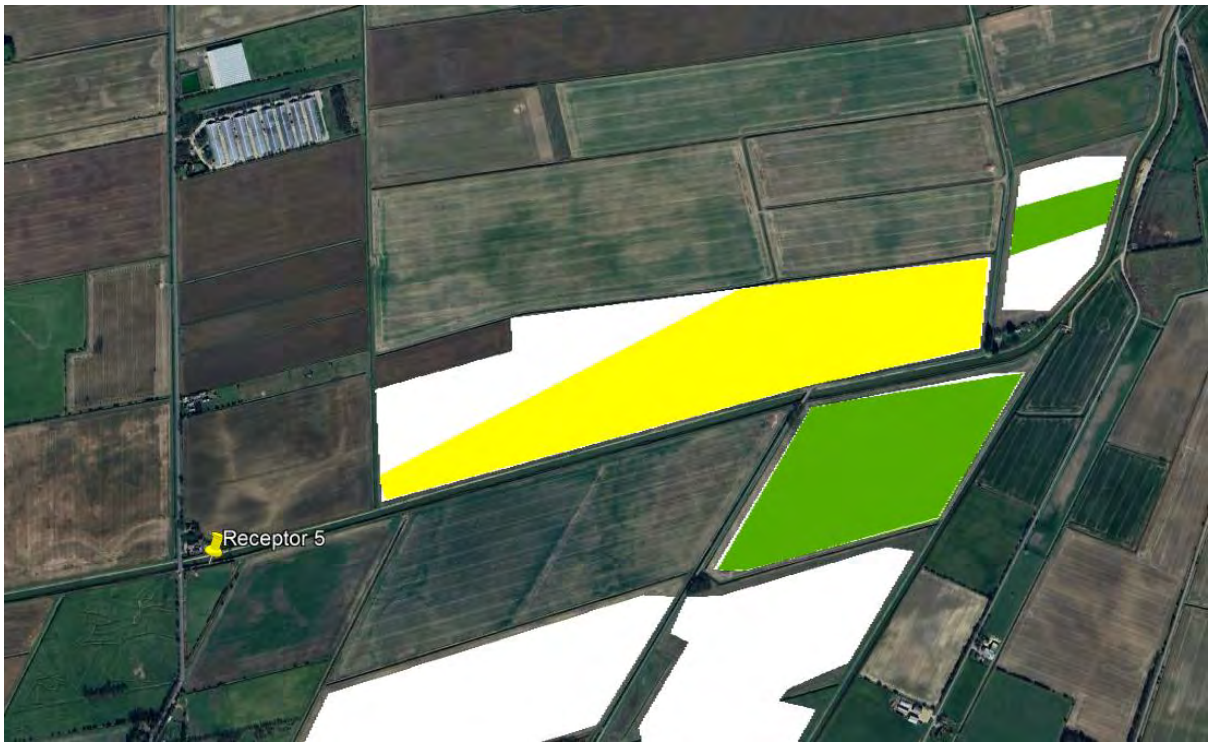

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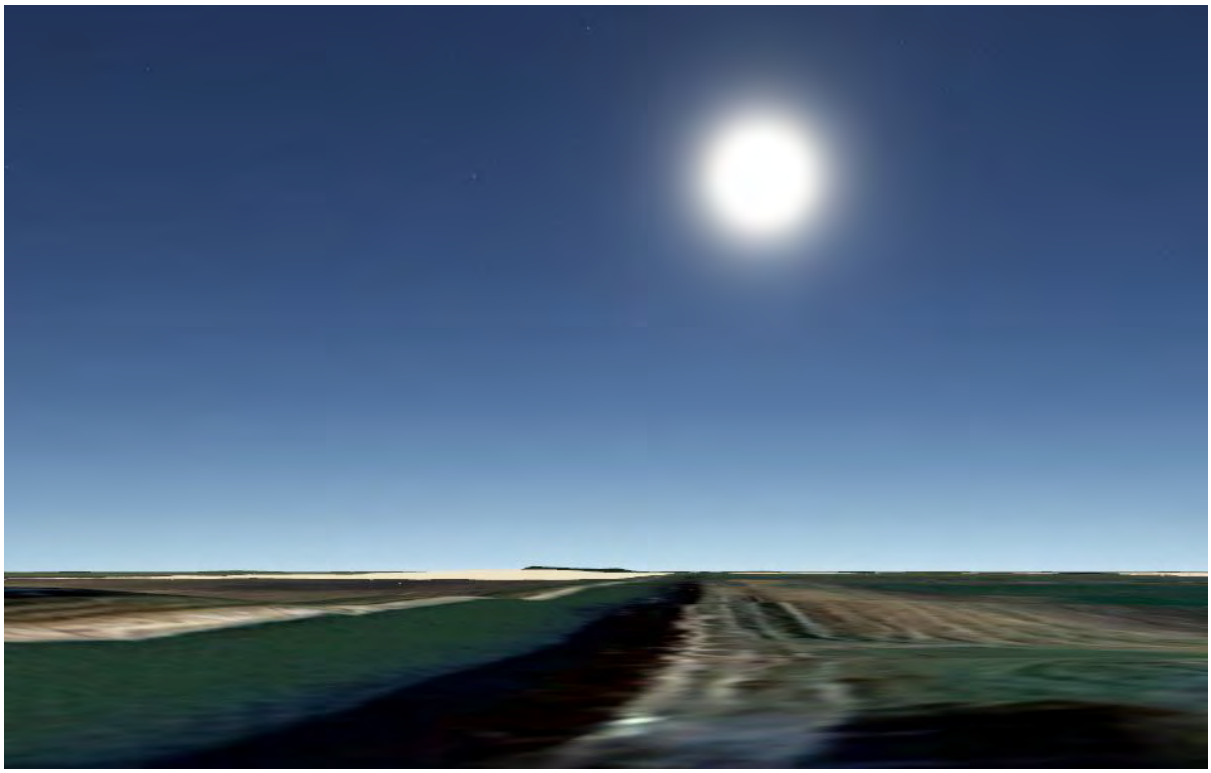

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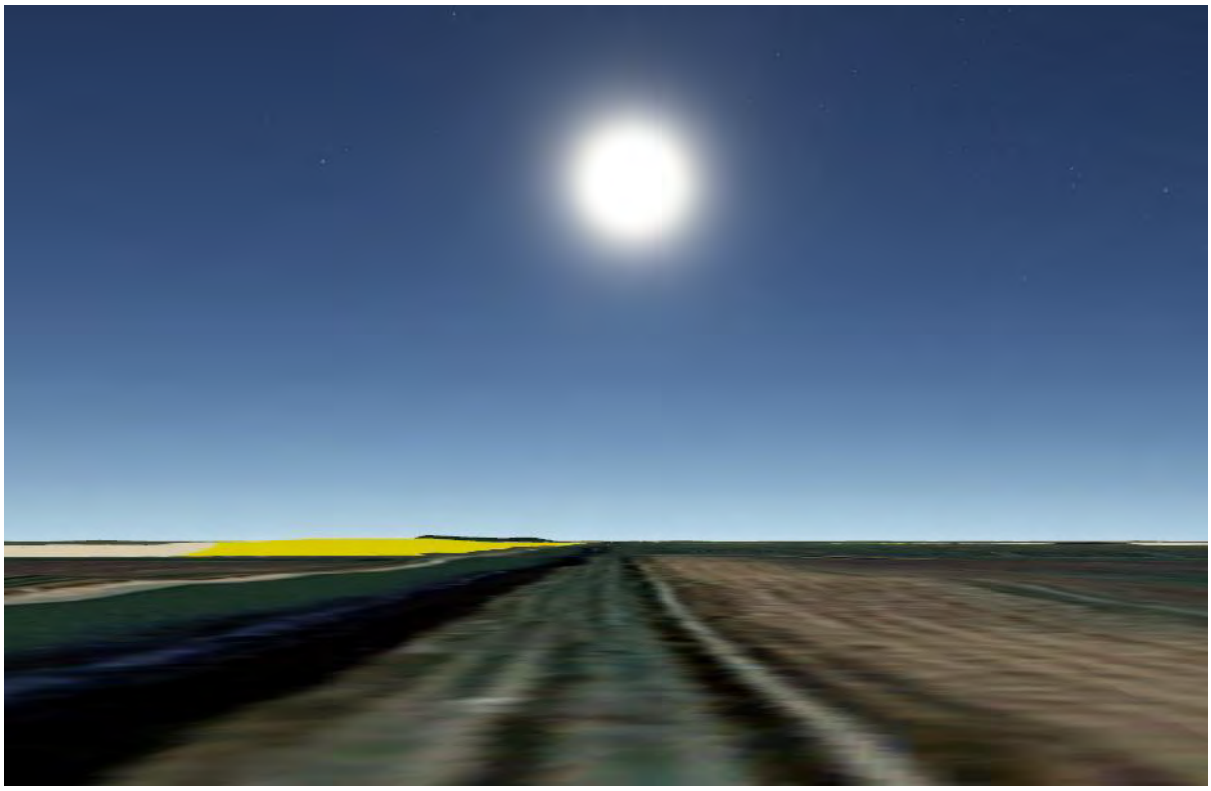

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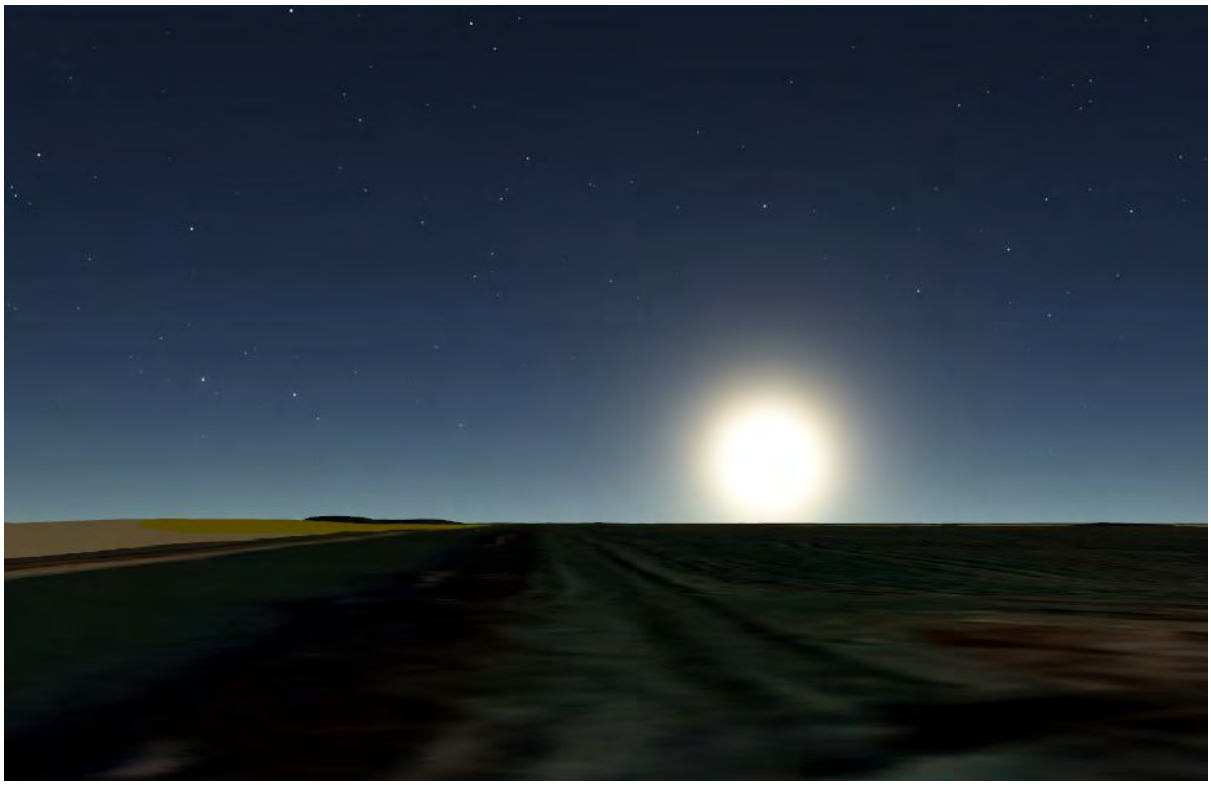

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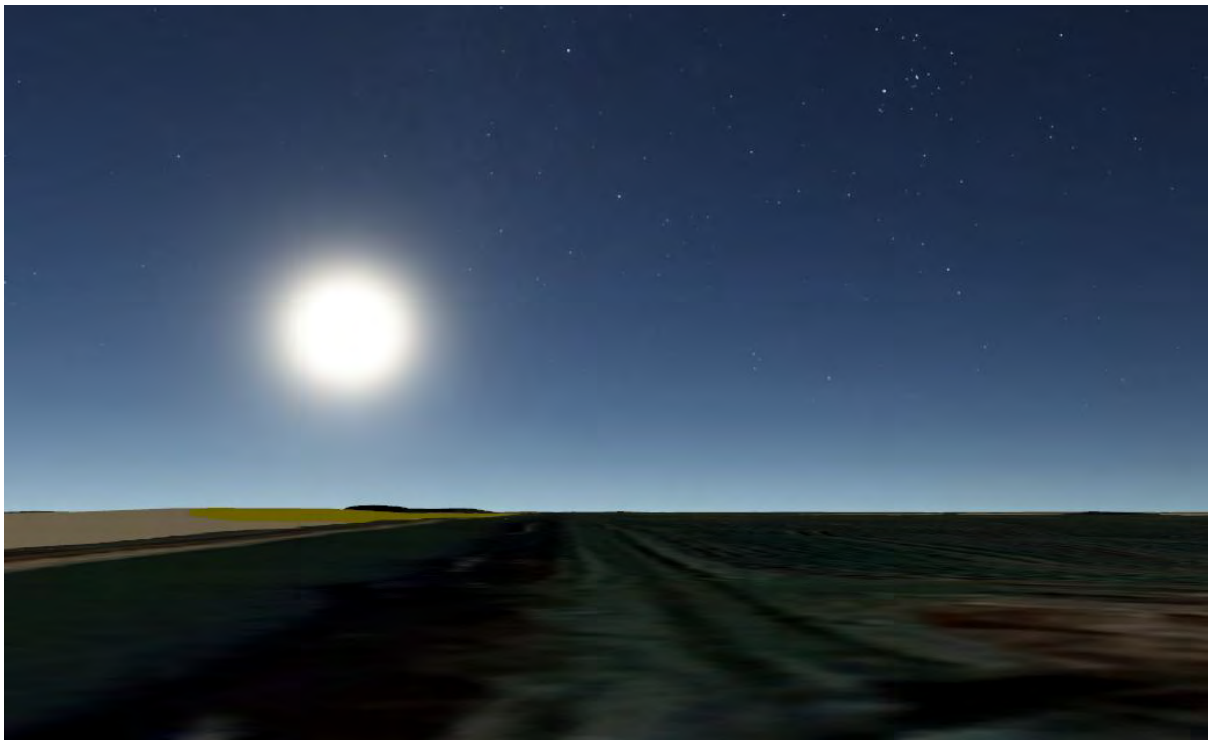

Receptor 8

Looking East

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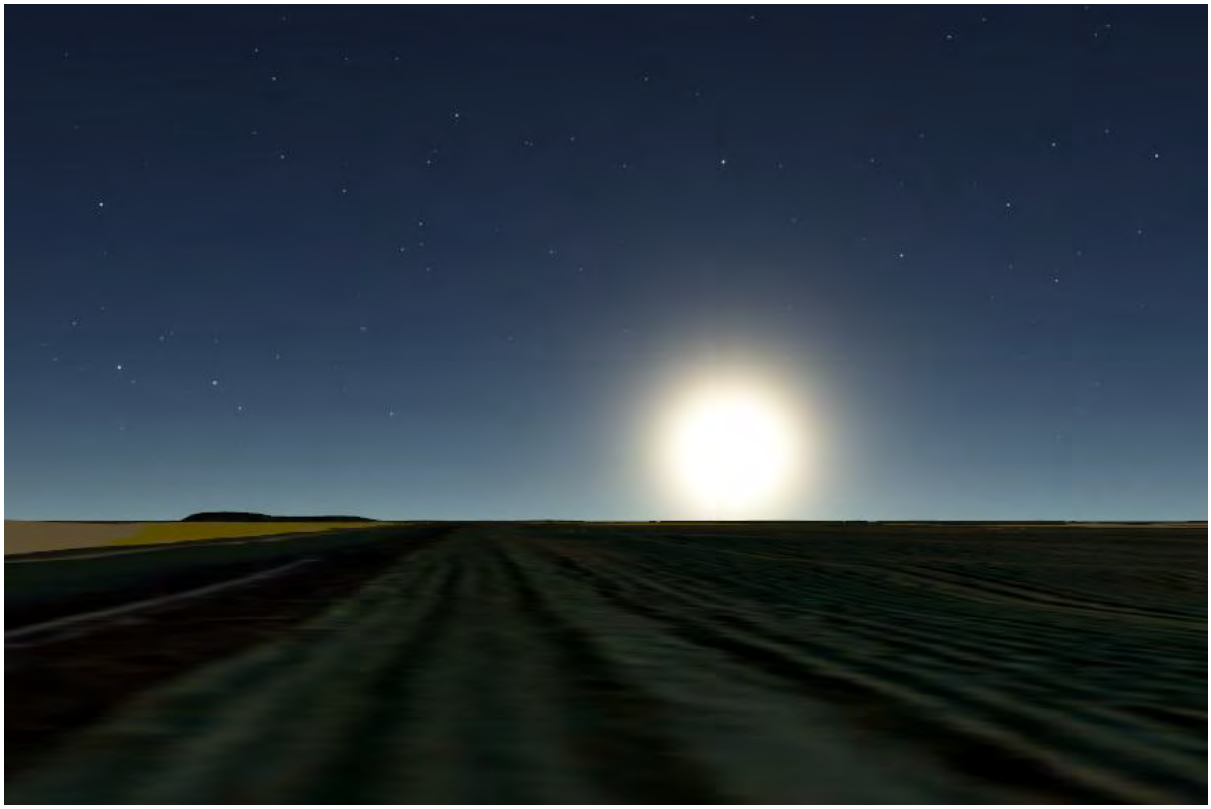

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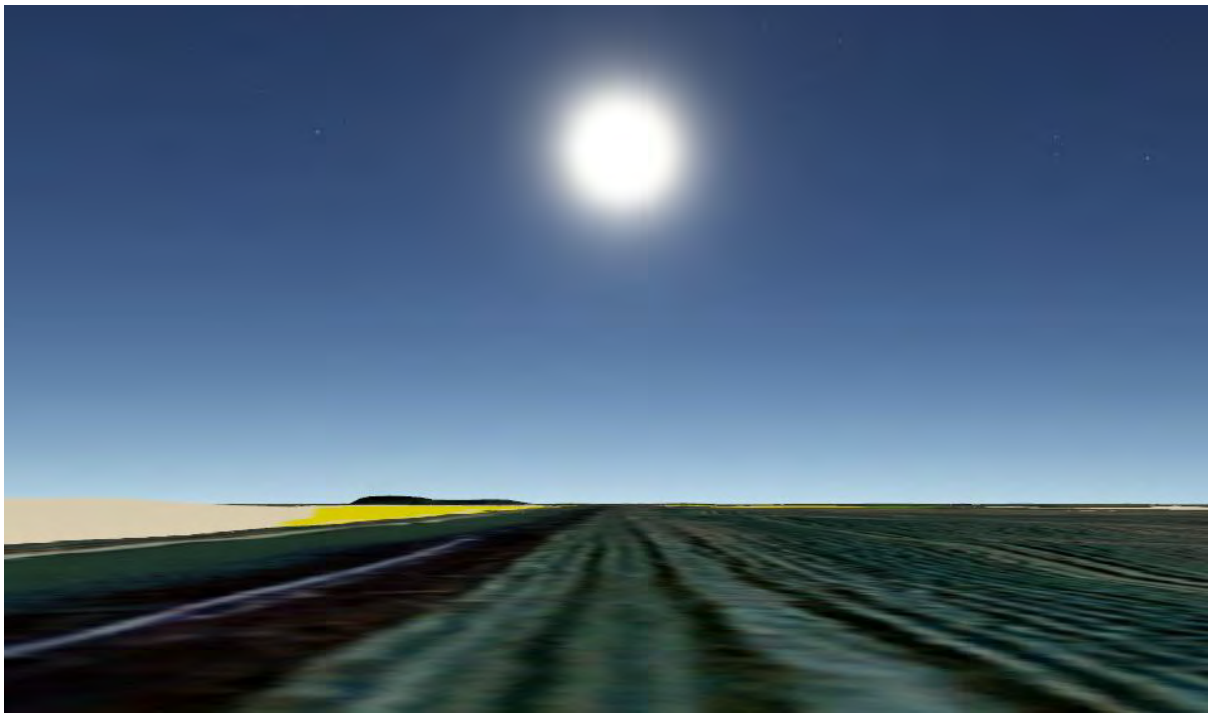

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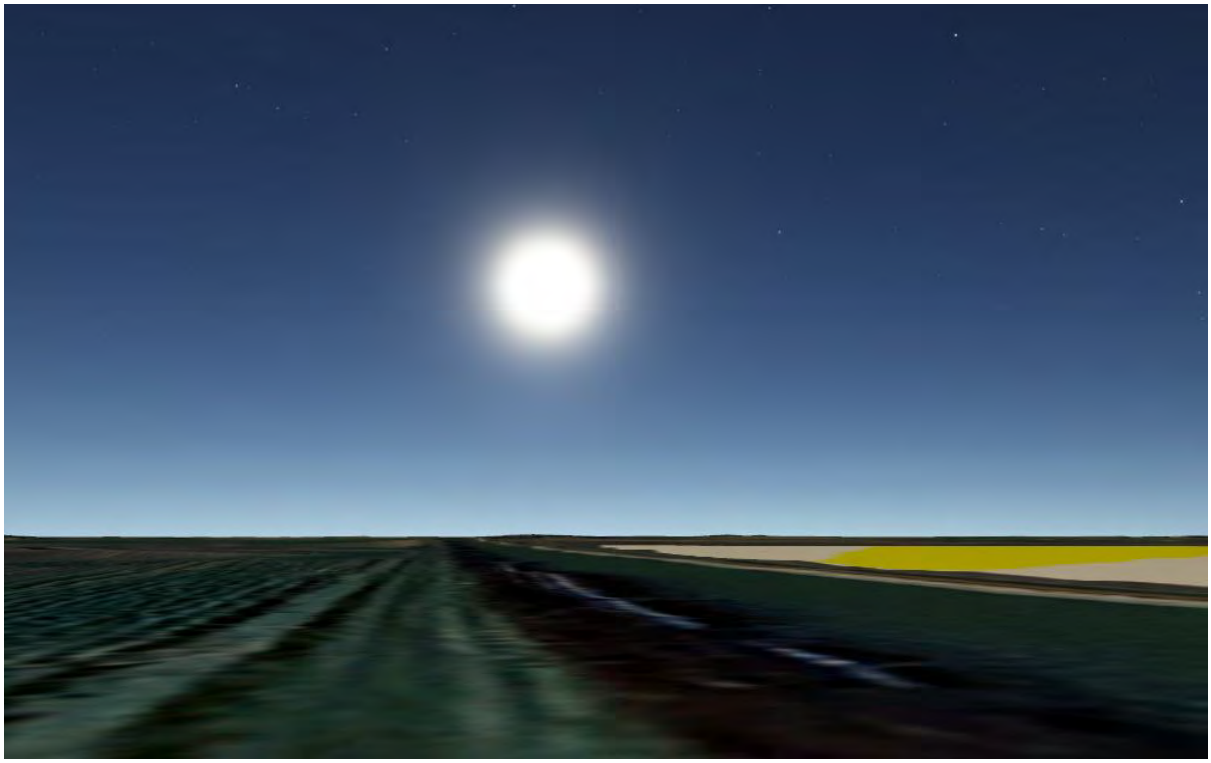

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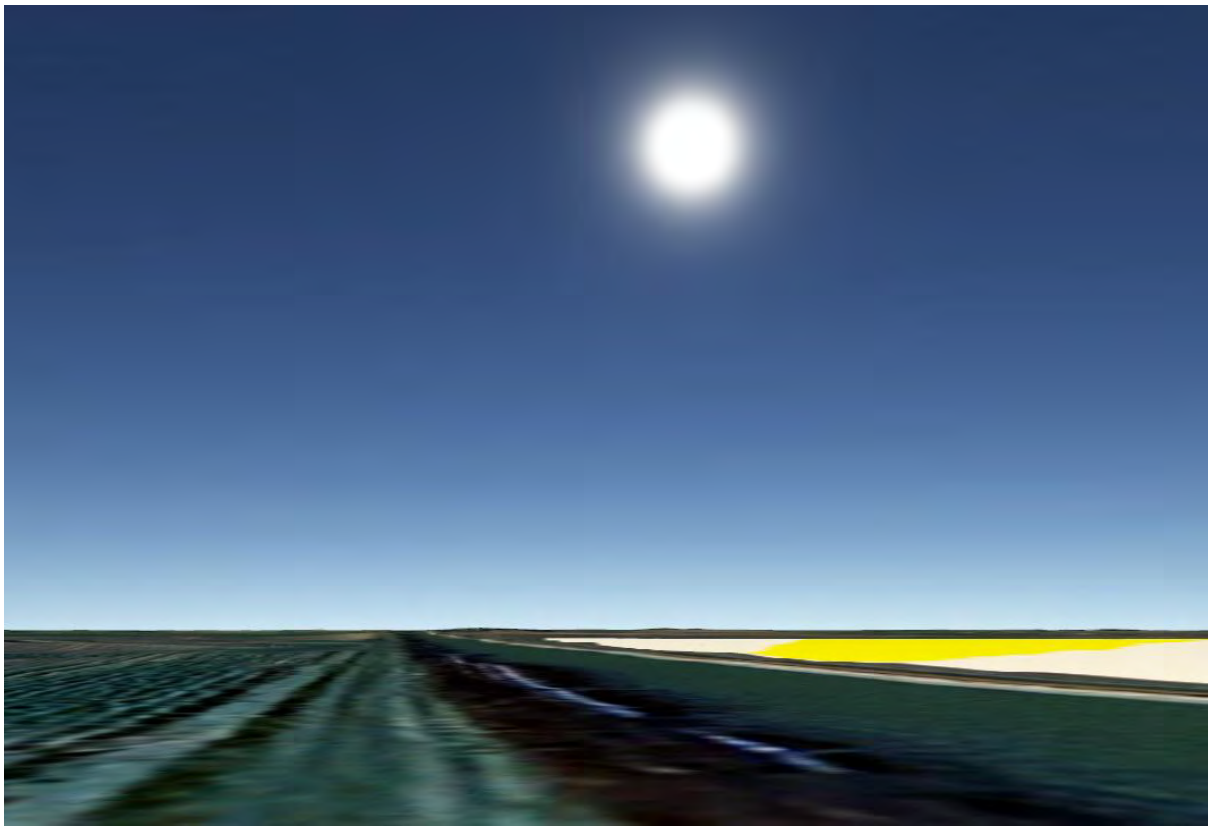

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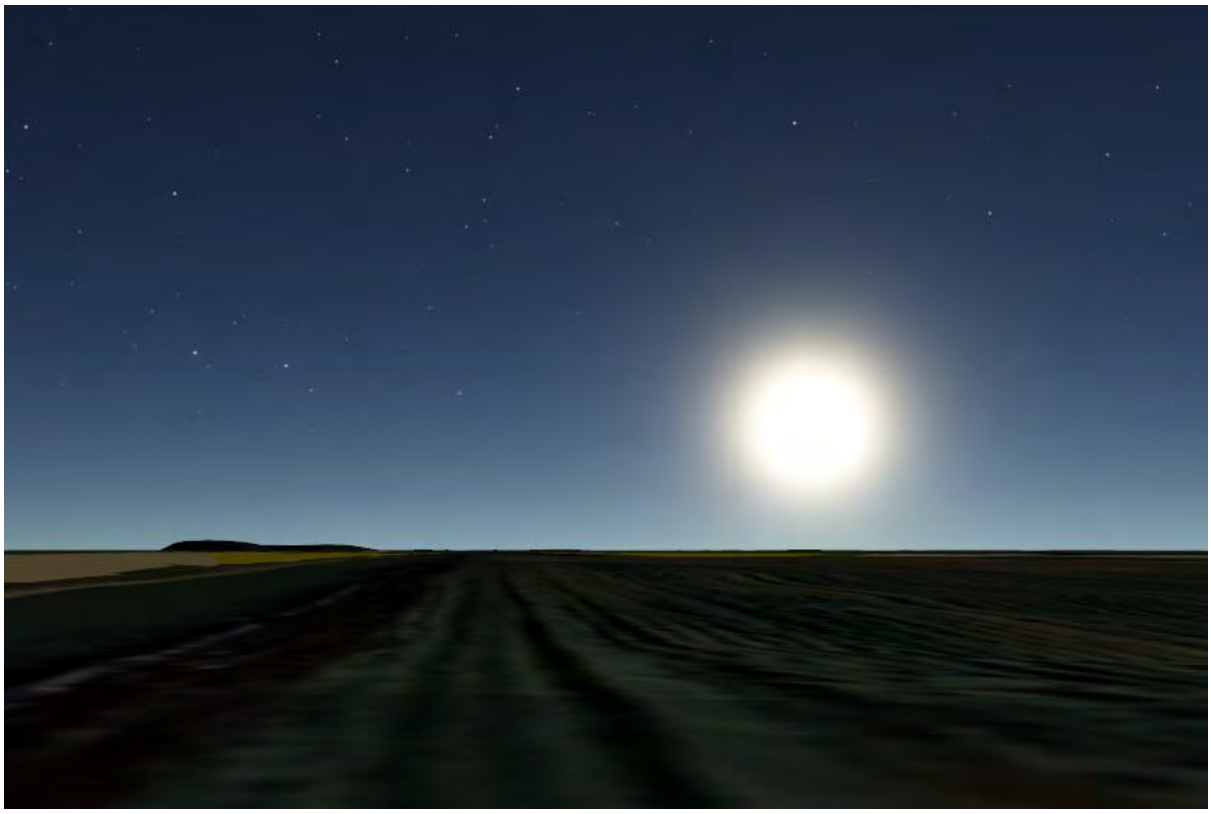

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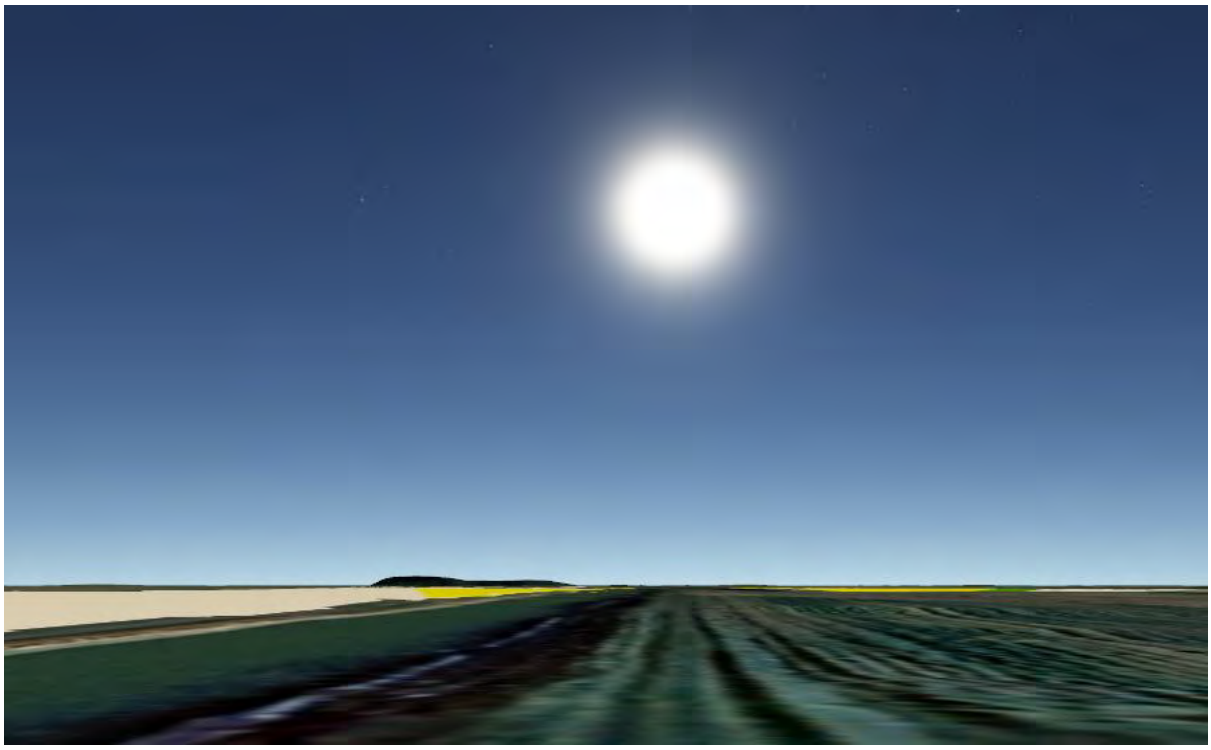

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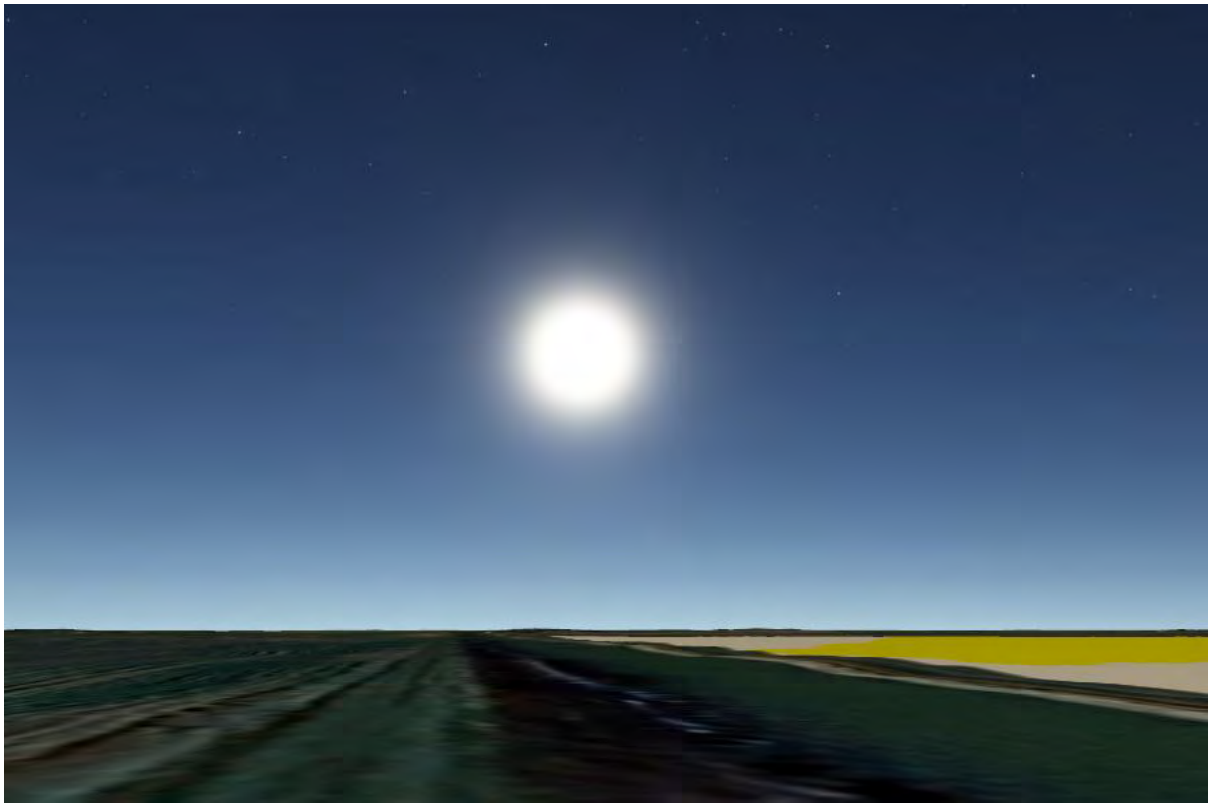

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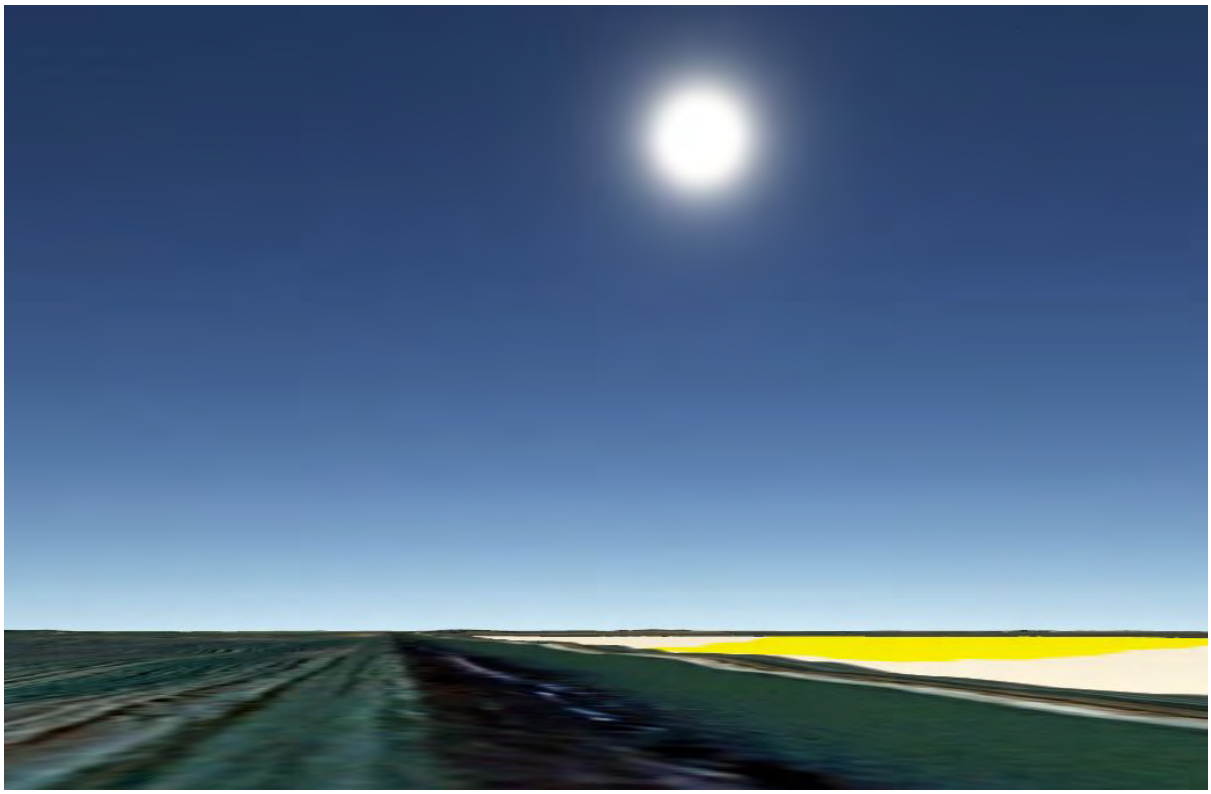

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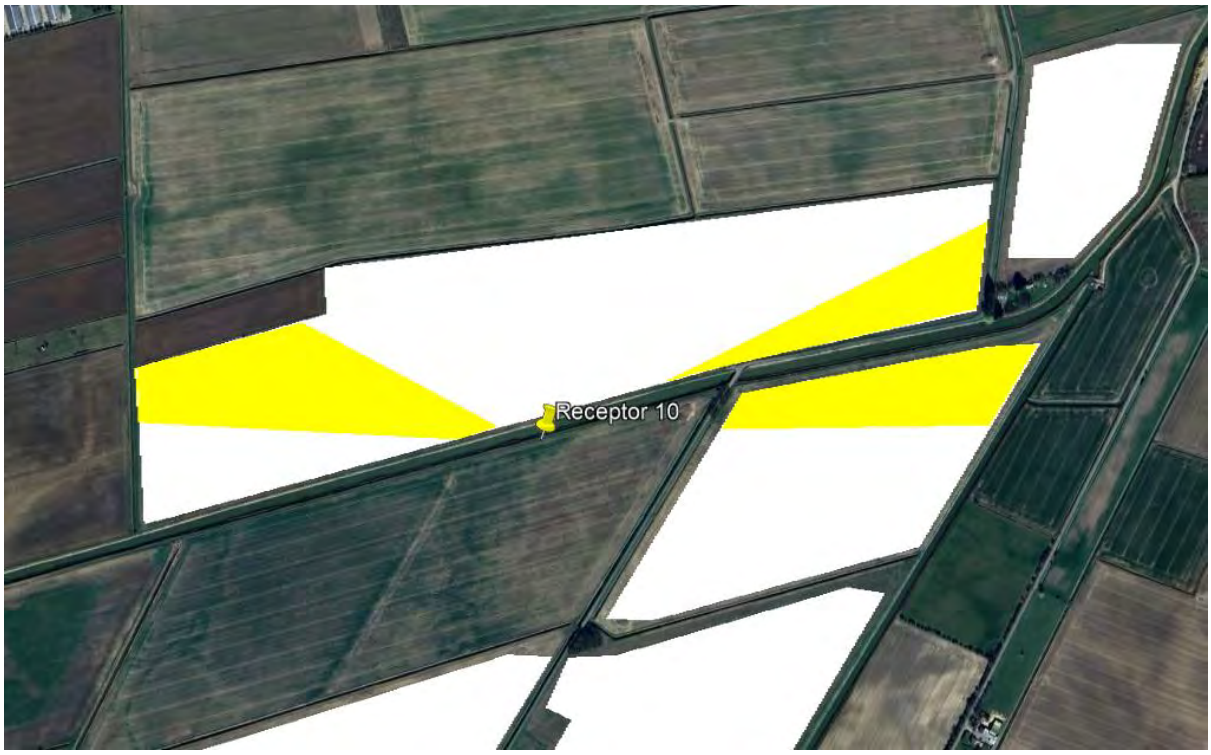

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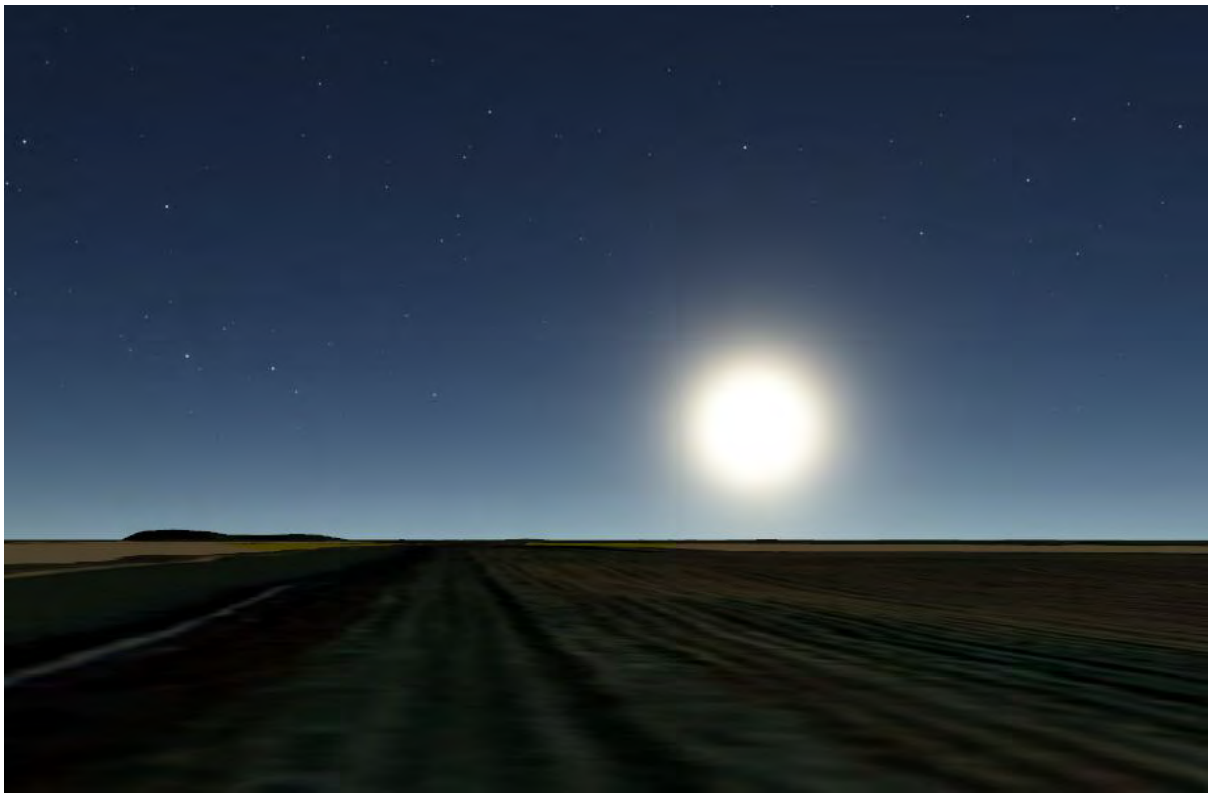

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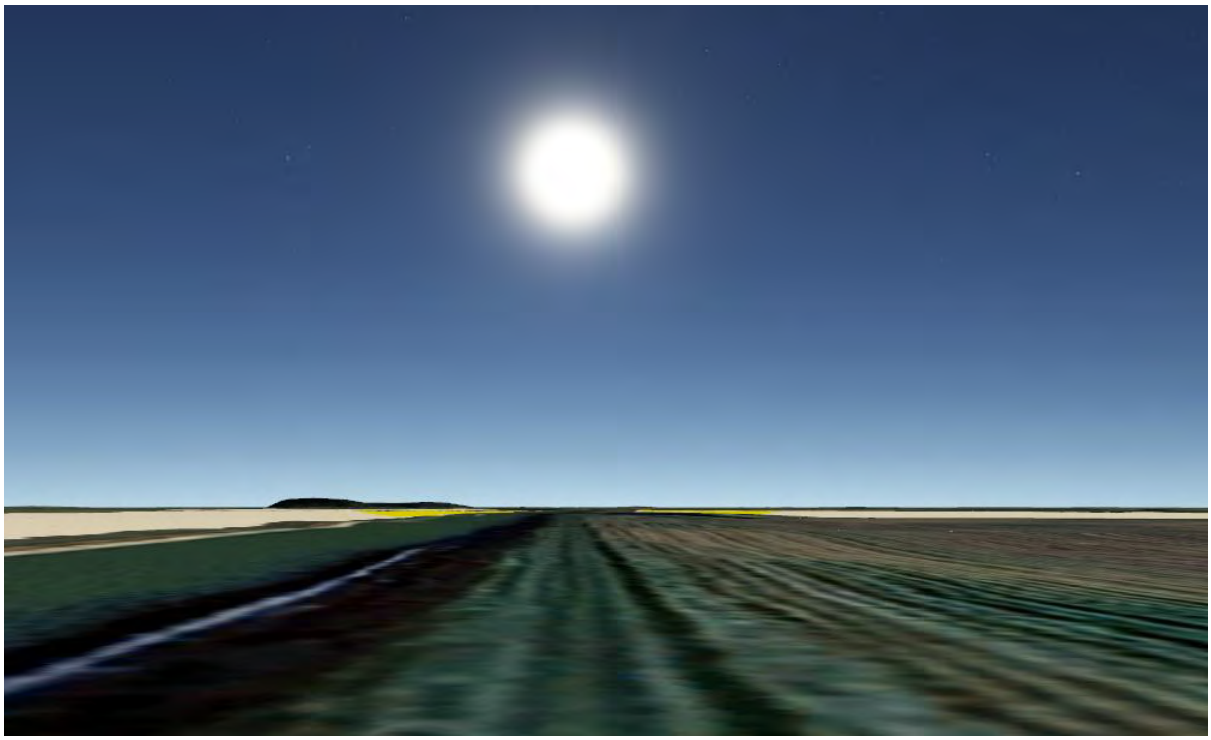

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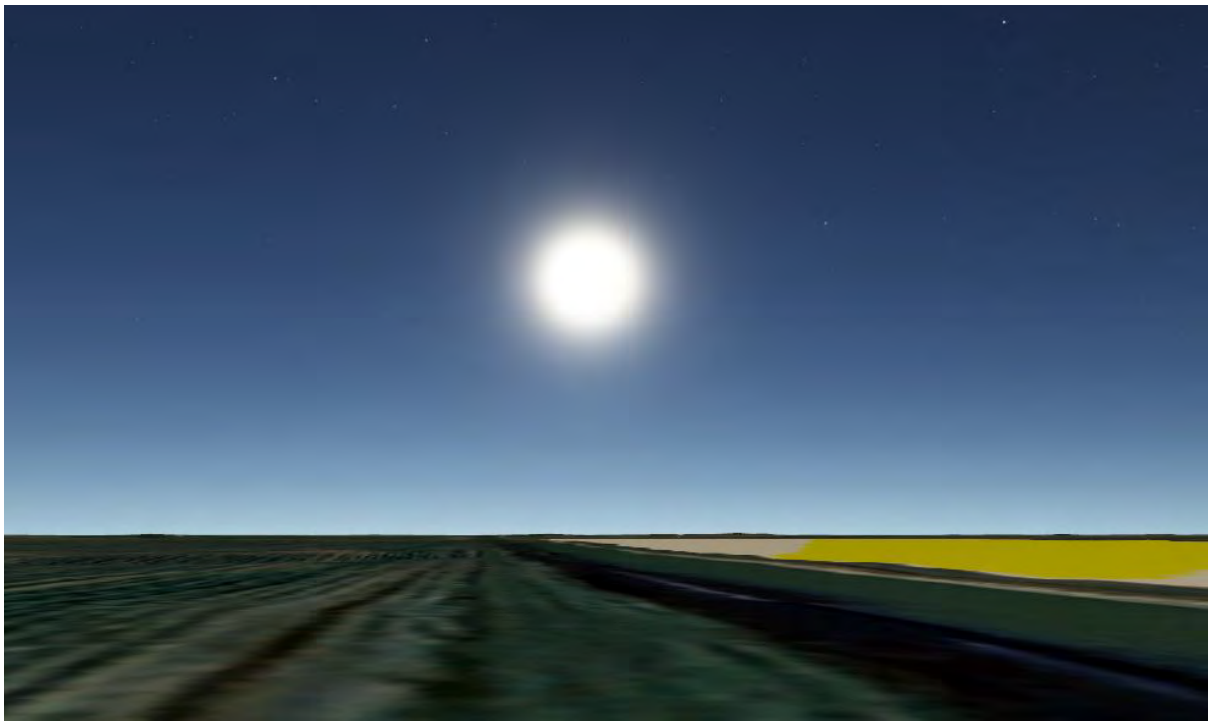

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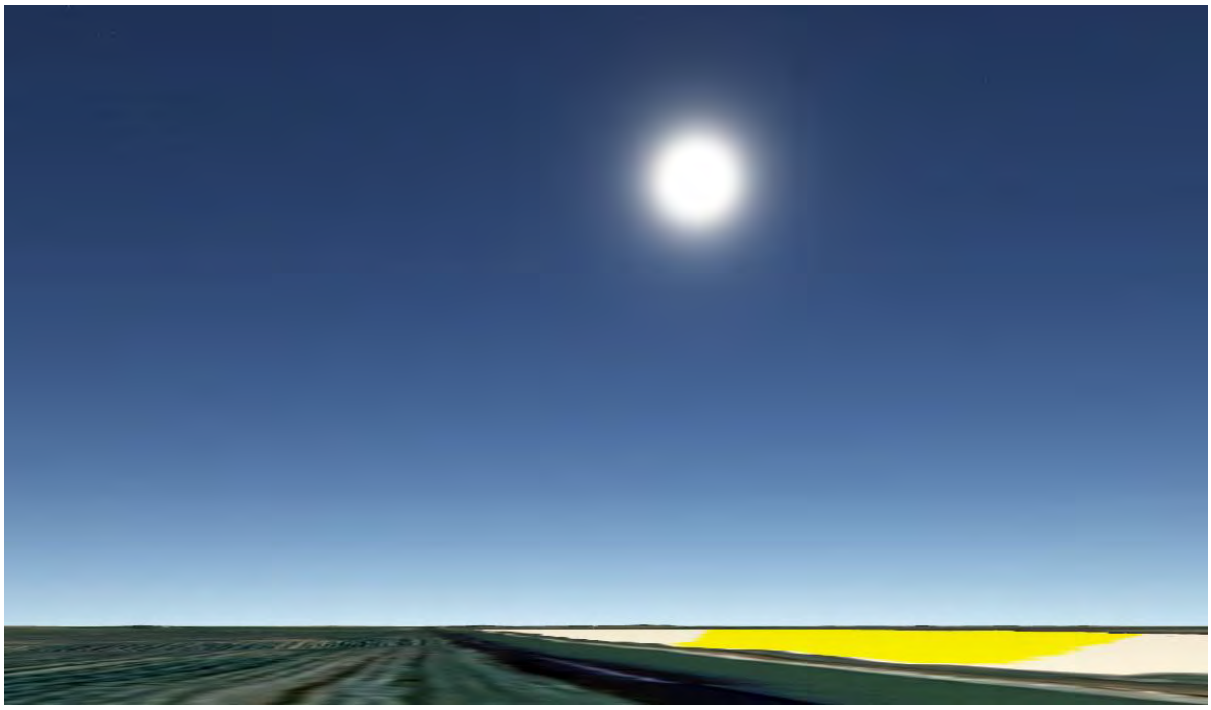

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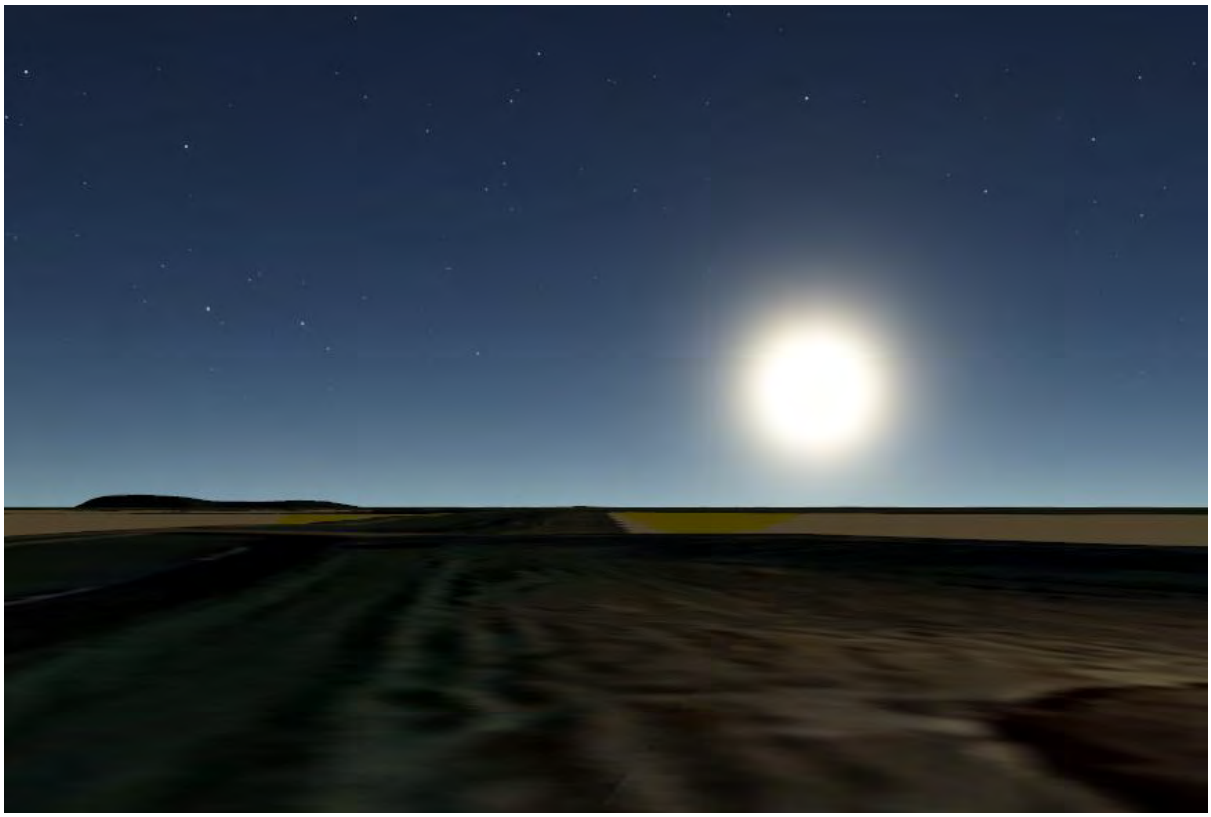

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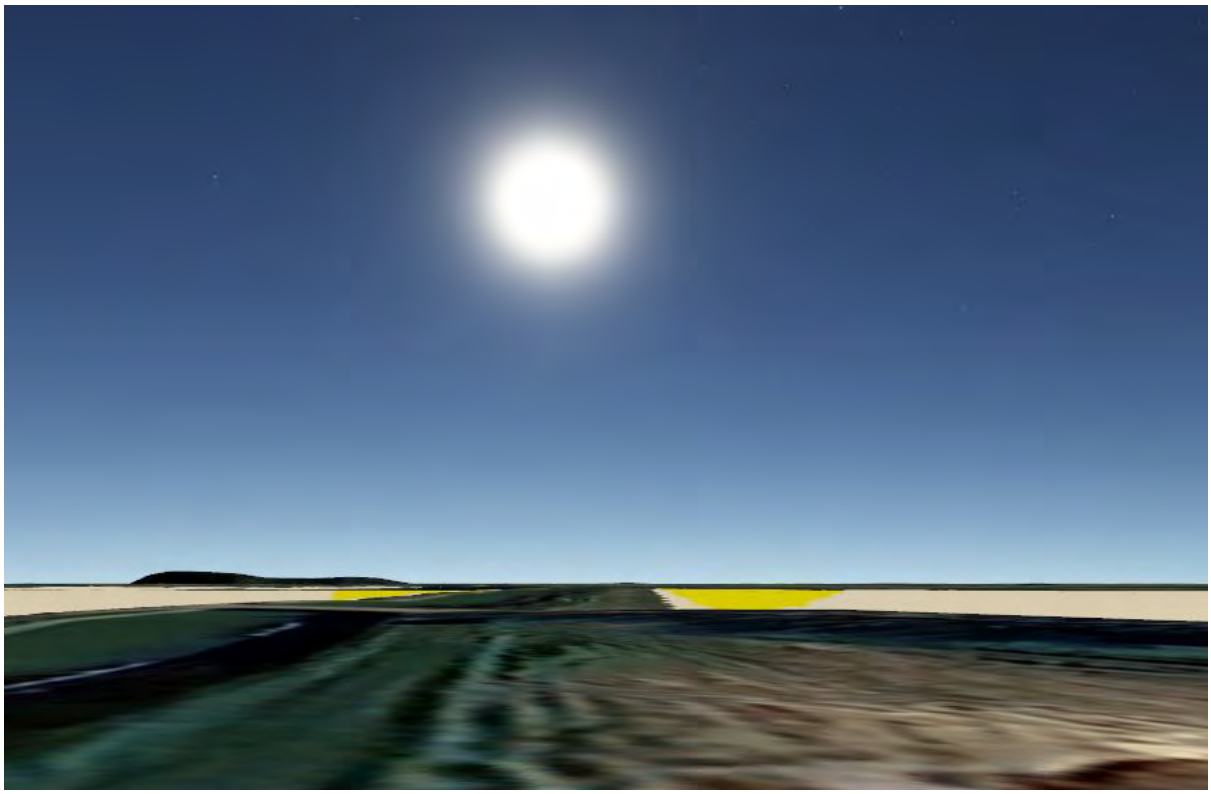

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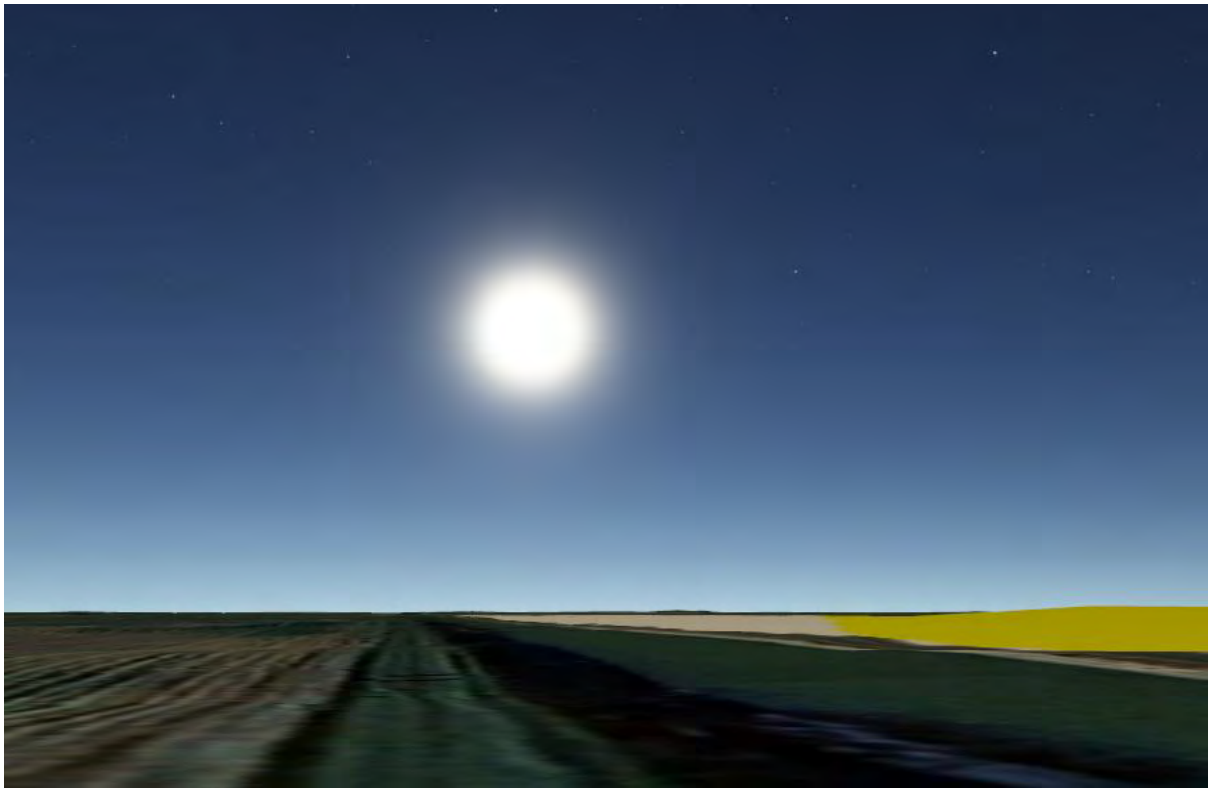

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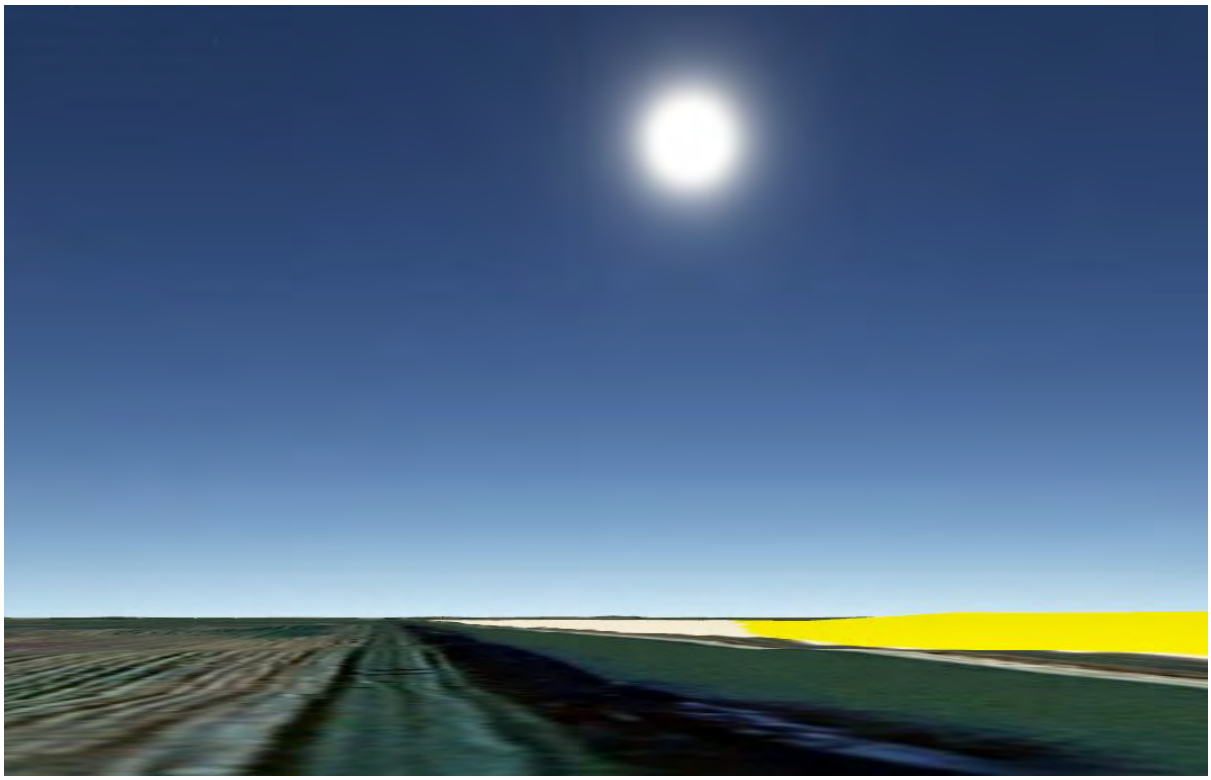

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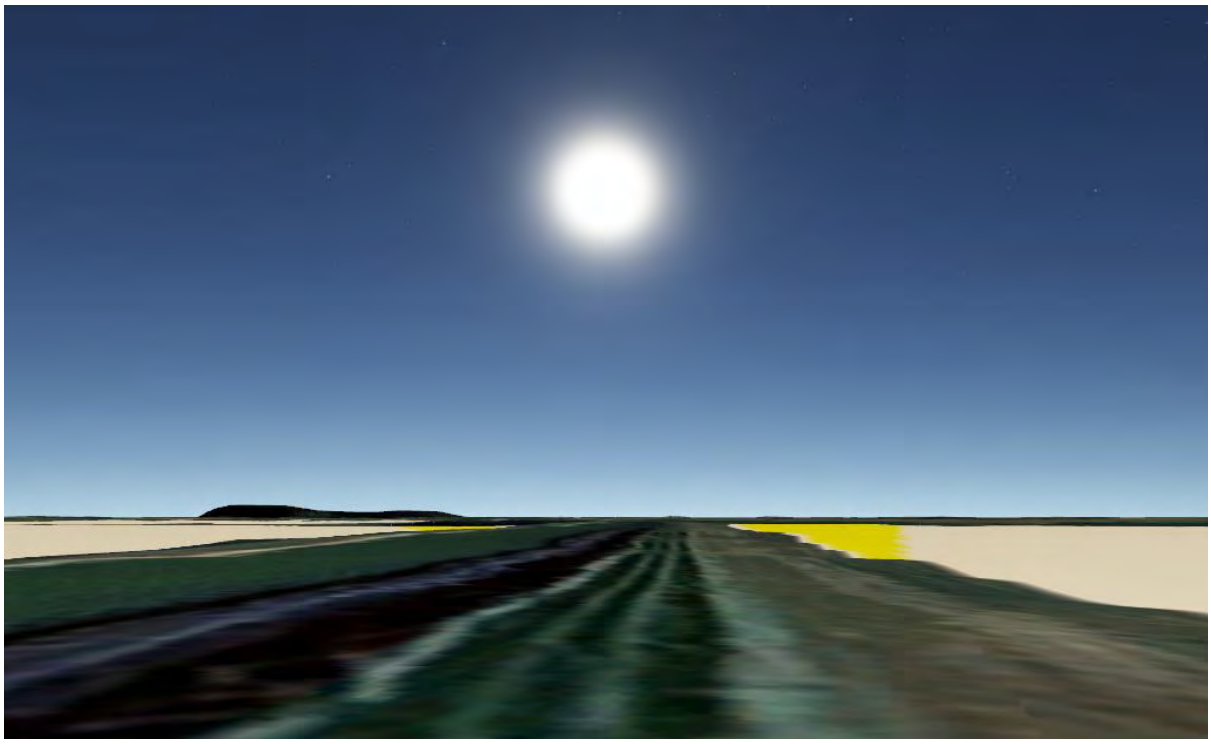

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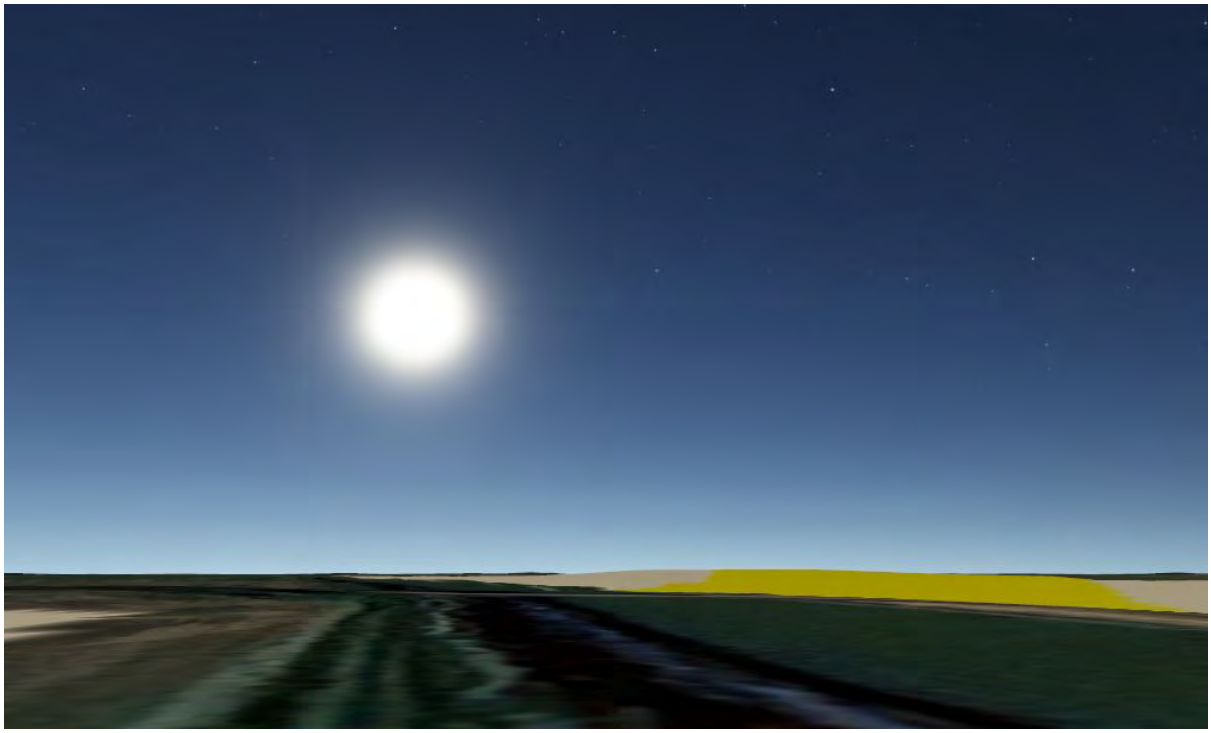

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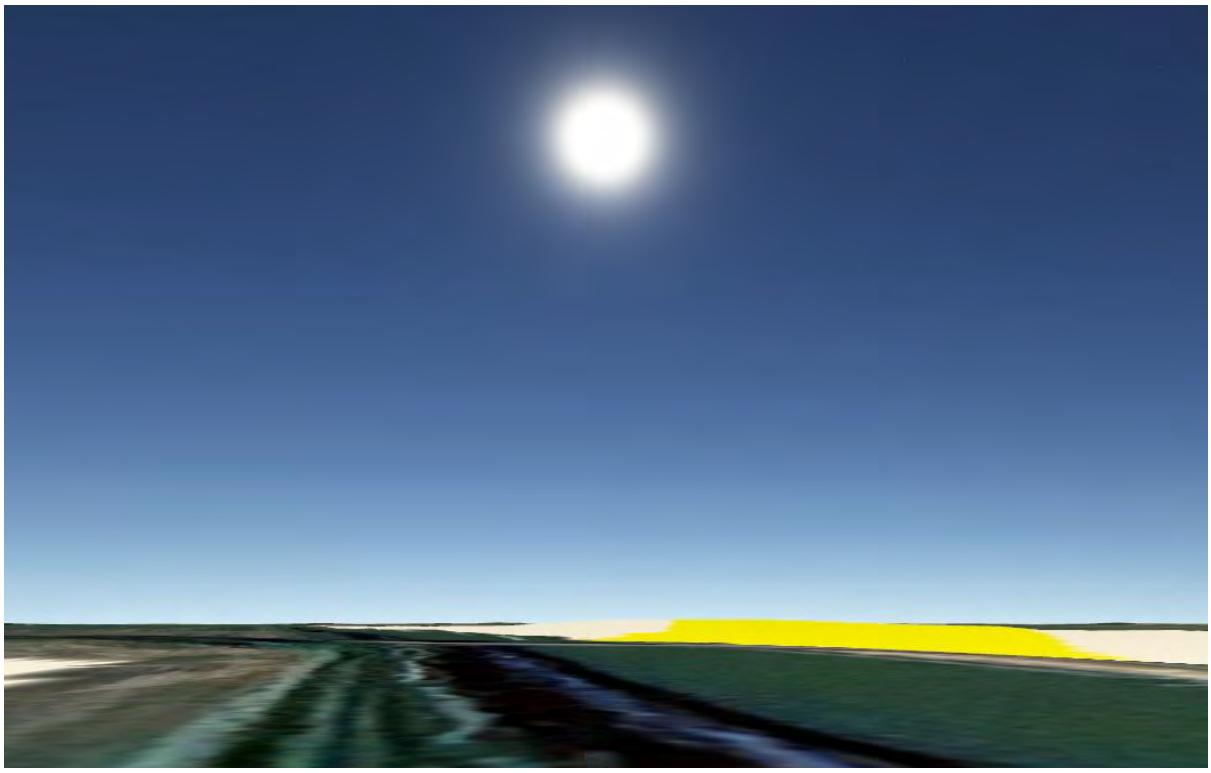

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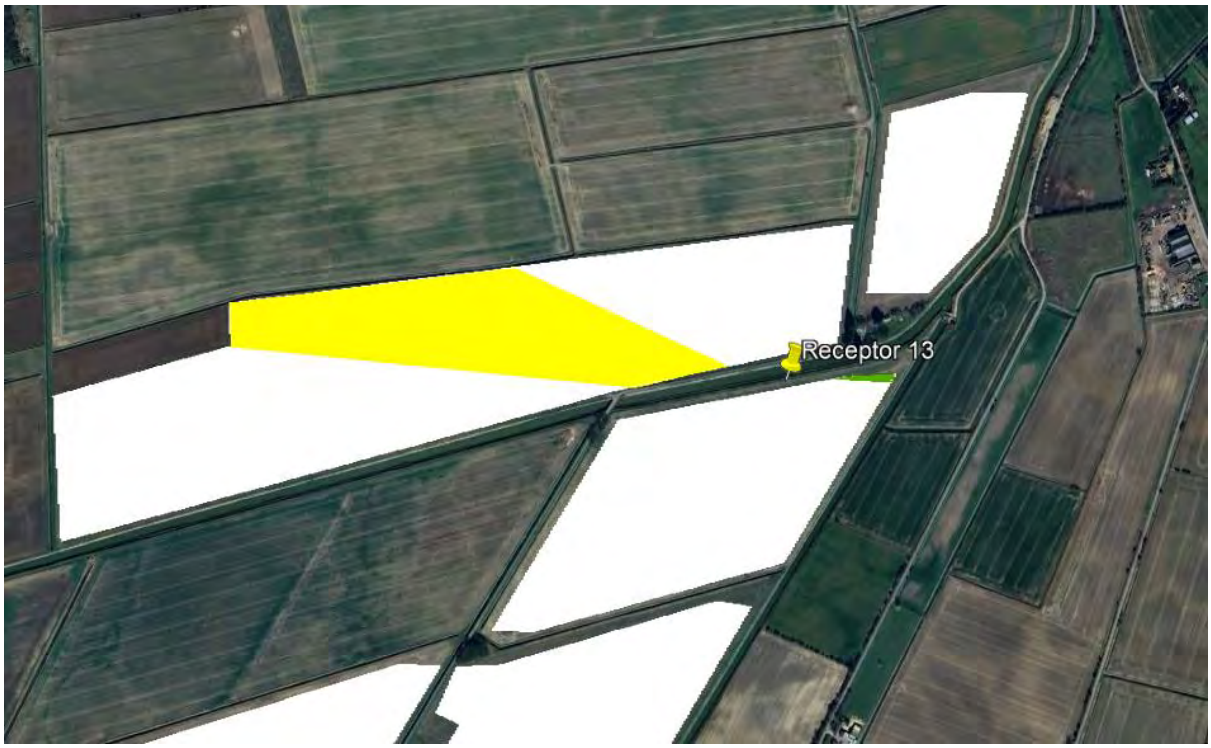

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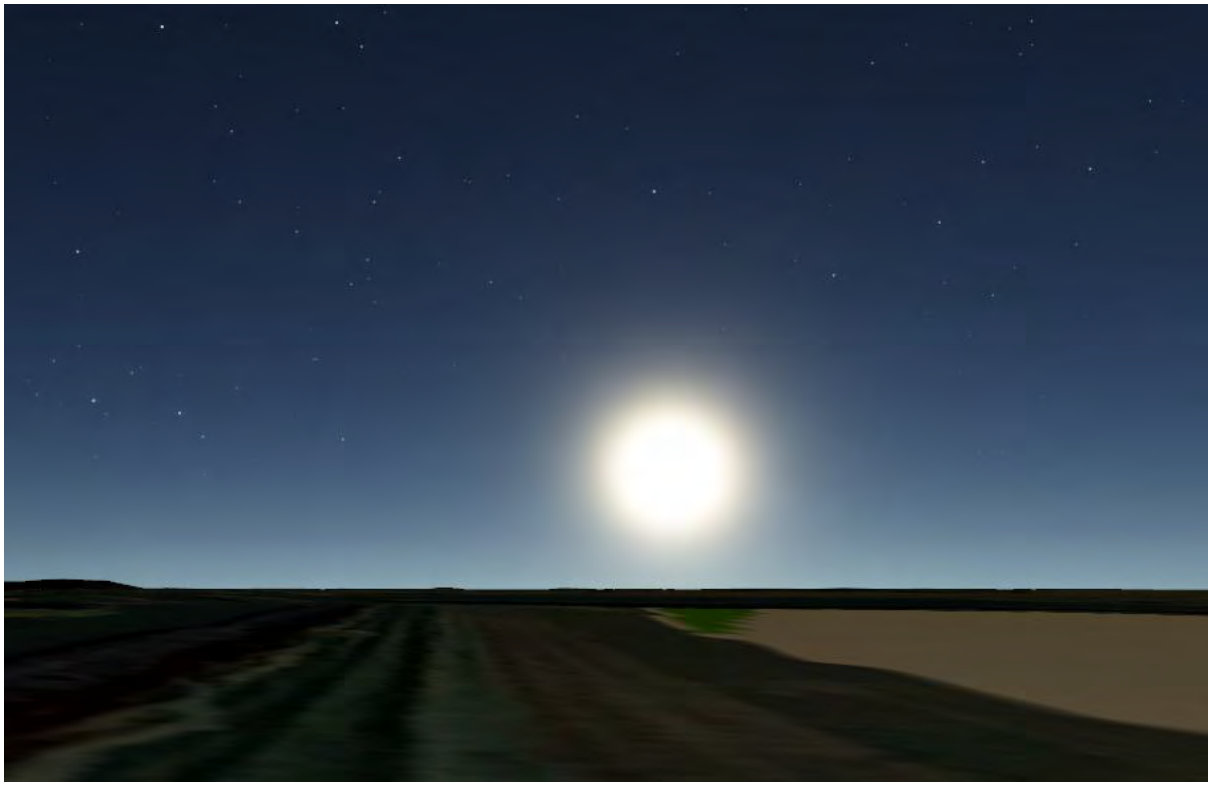

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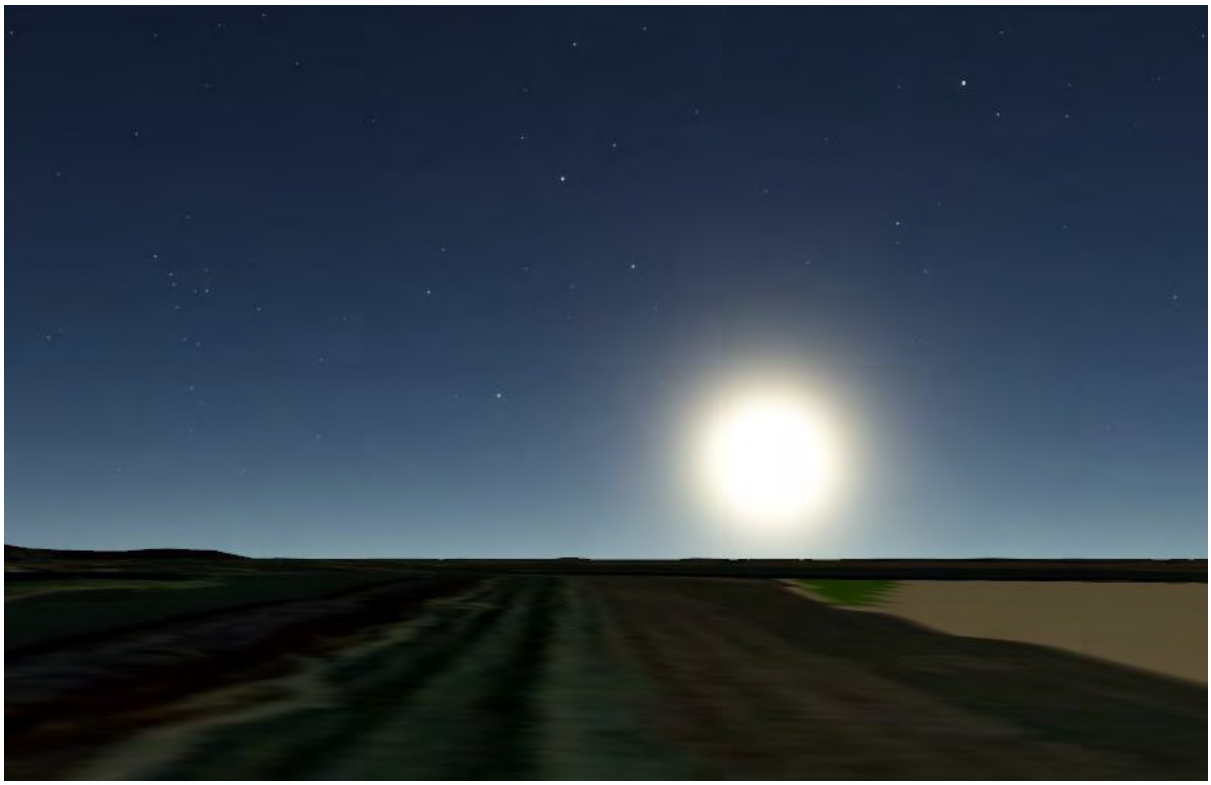

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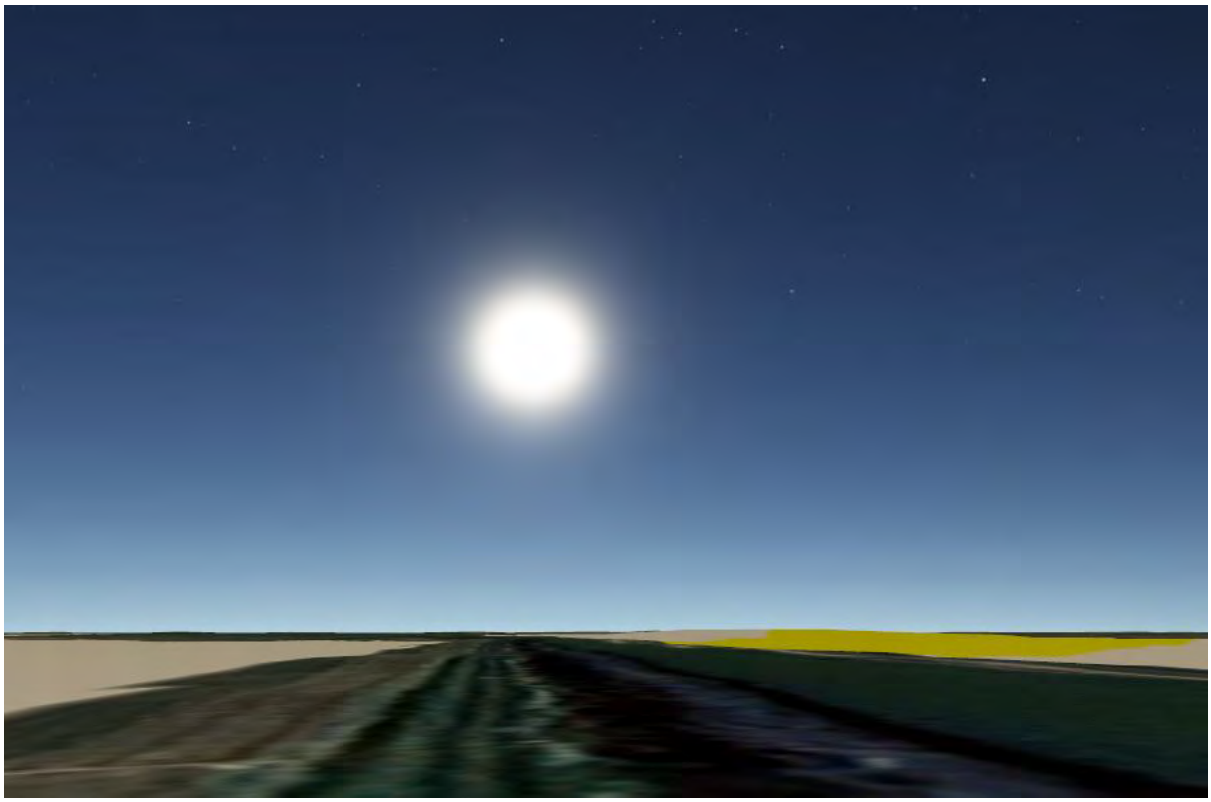

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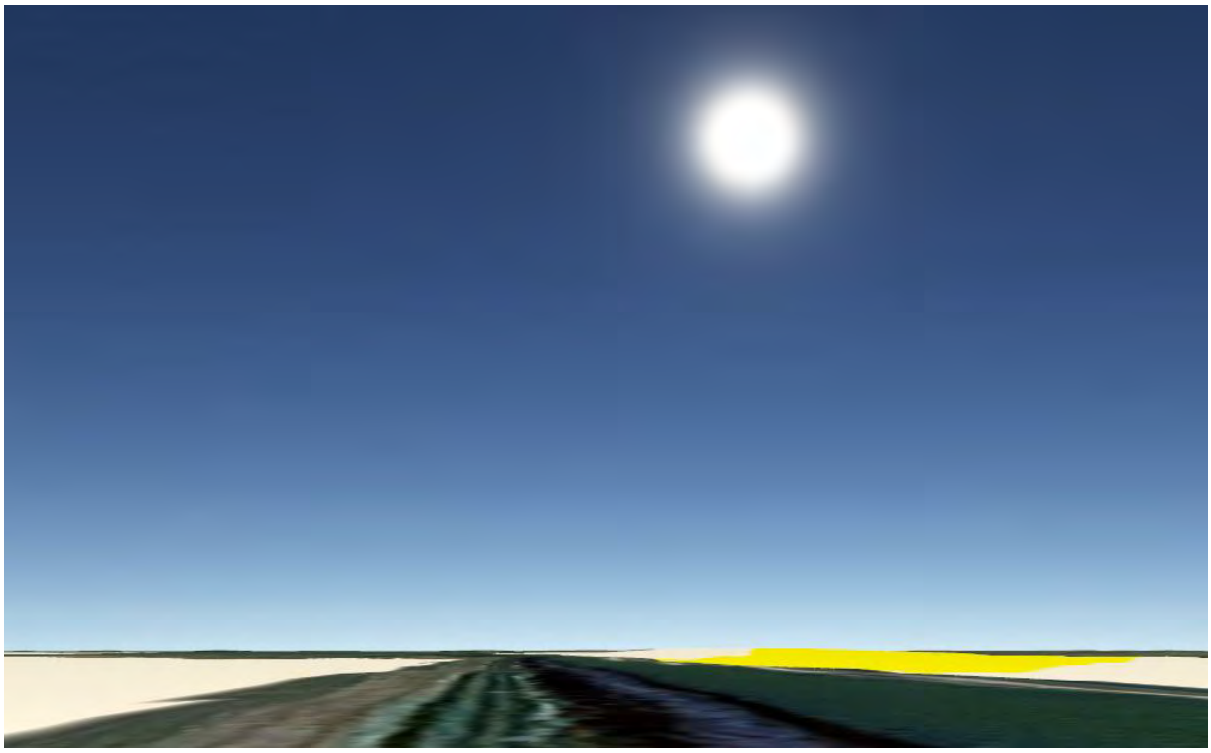

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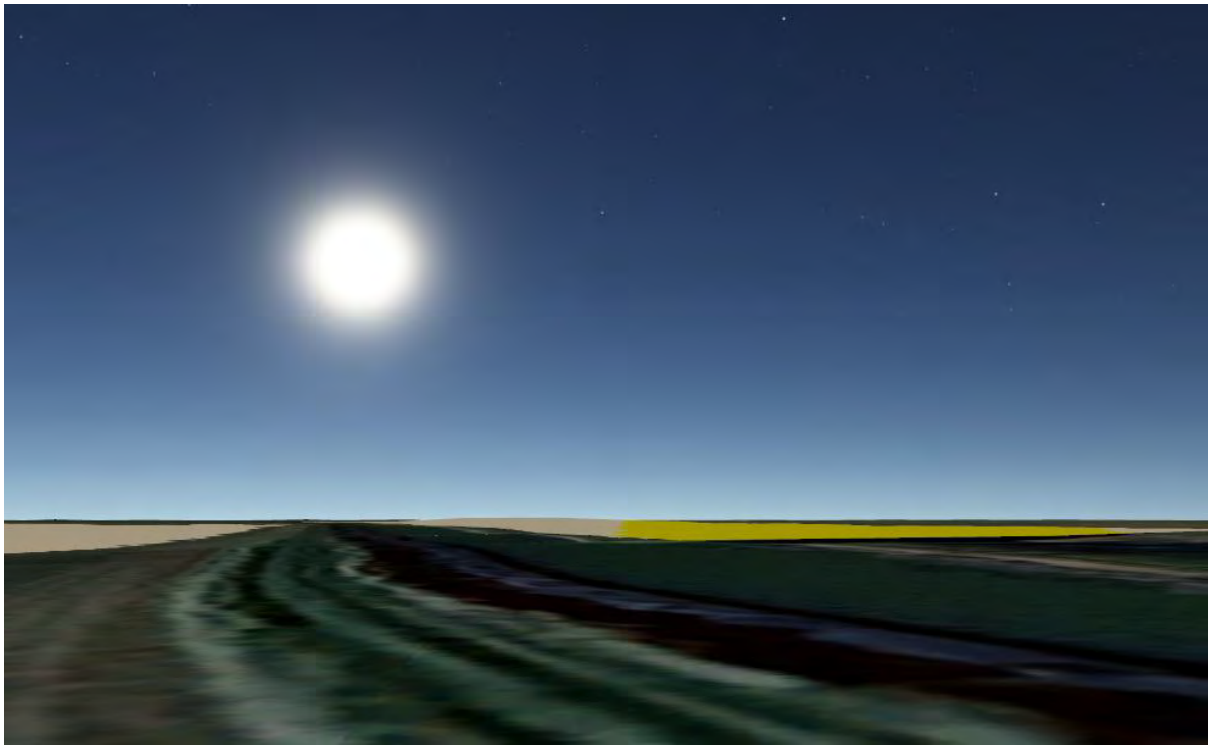

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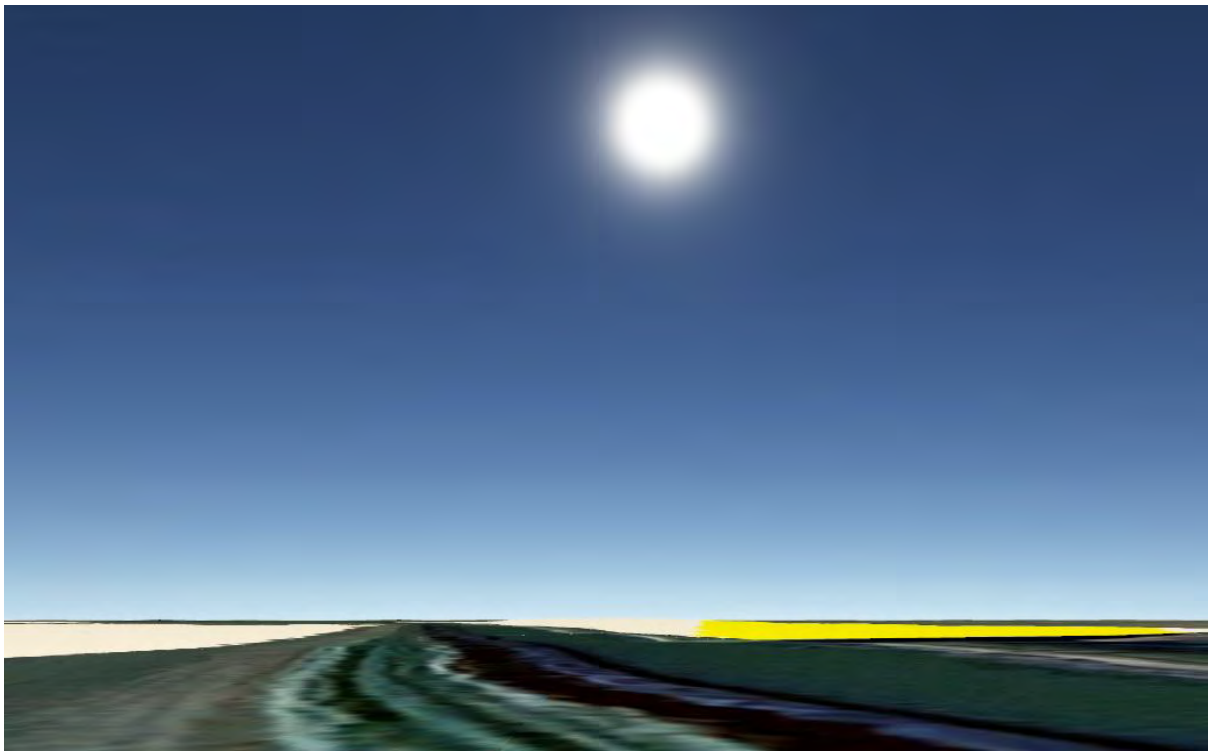

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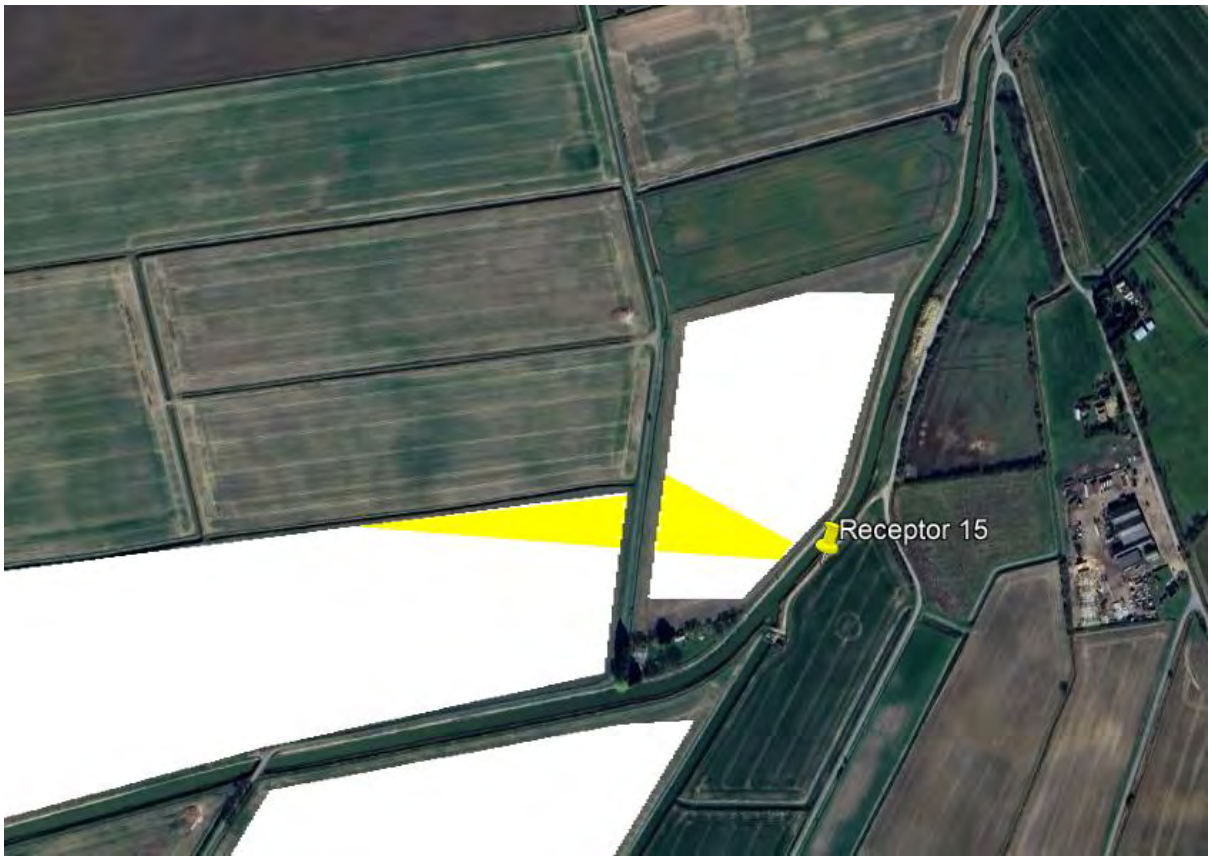

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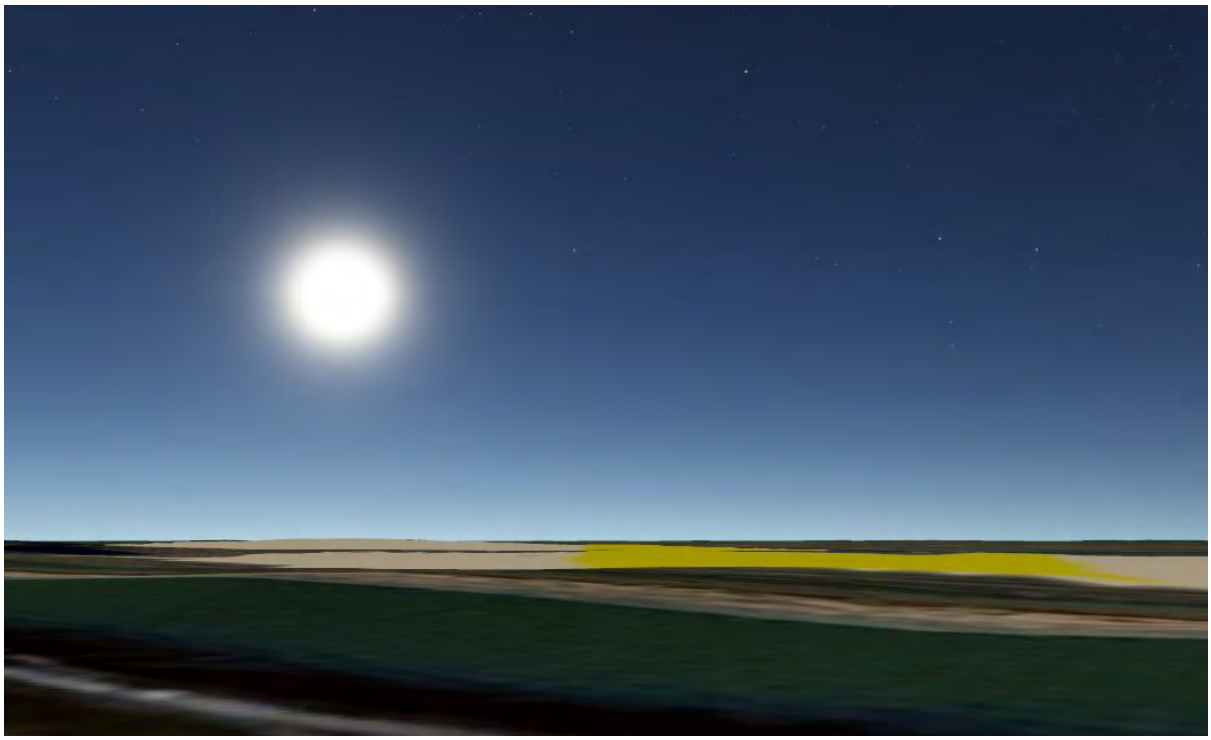

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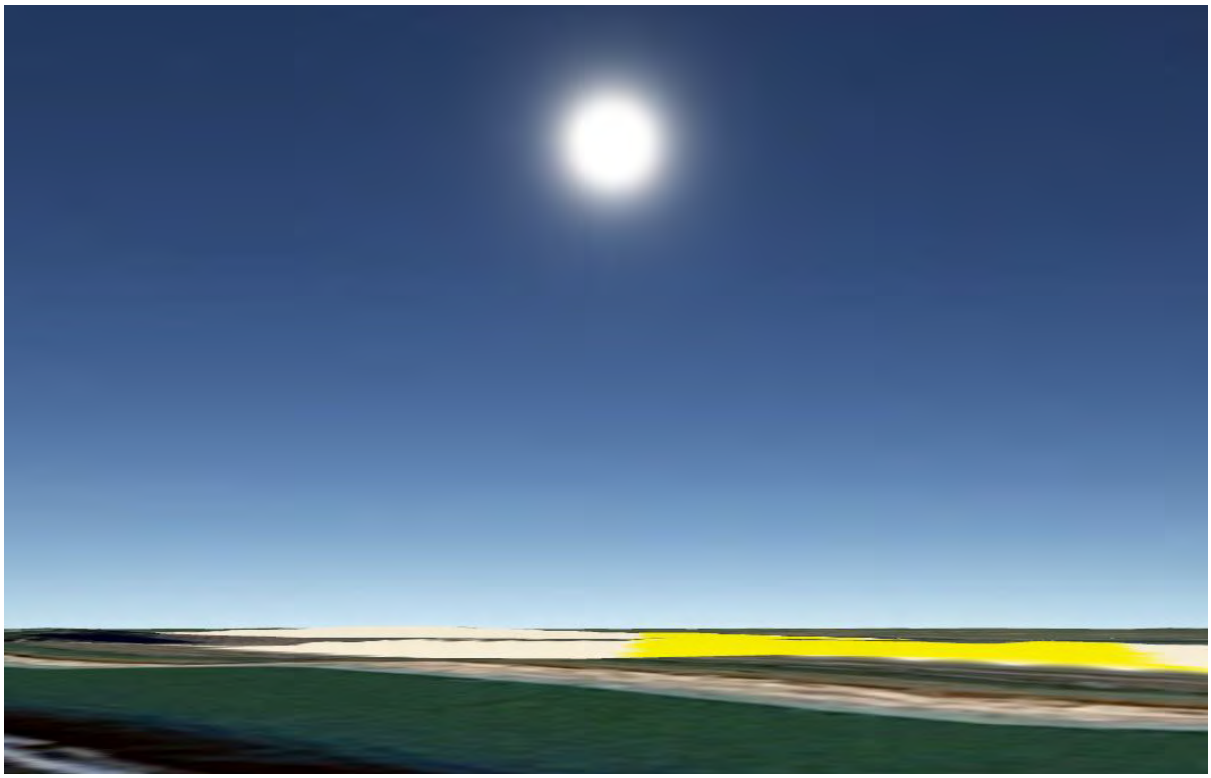

Receptor 16

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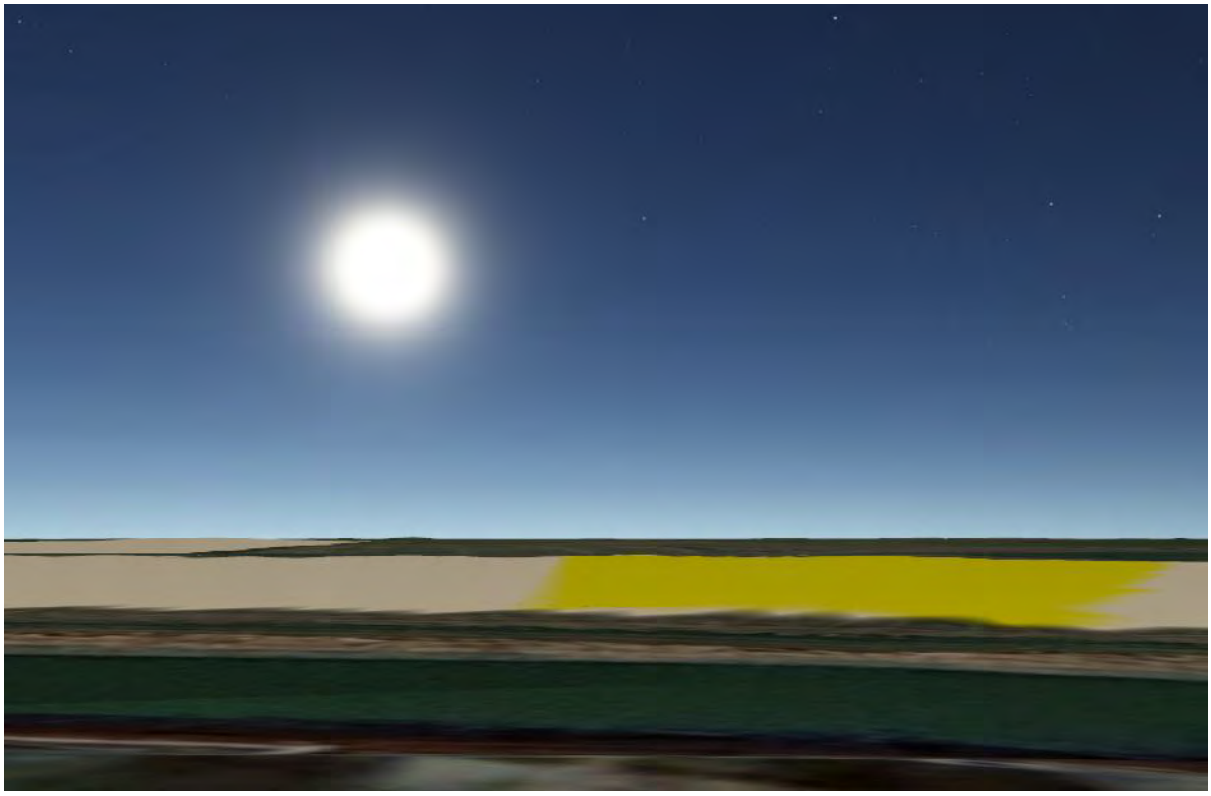

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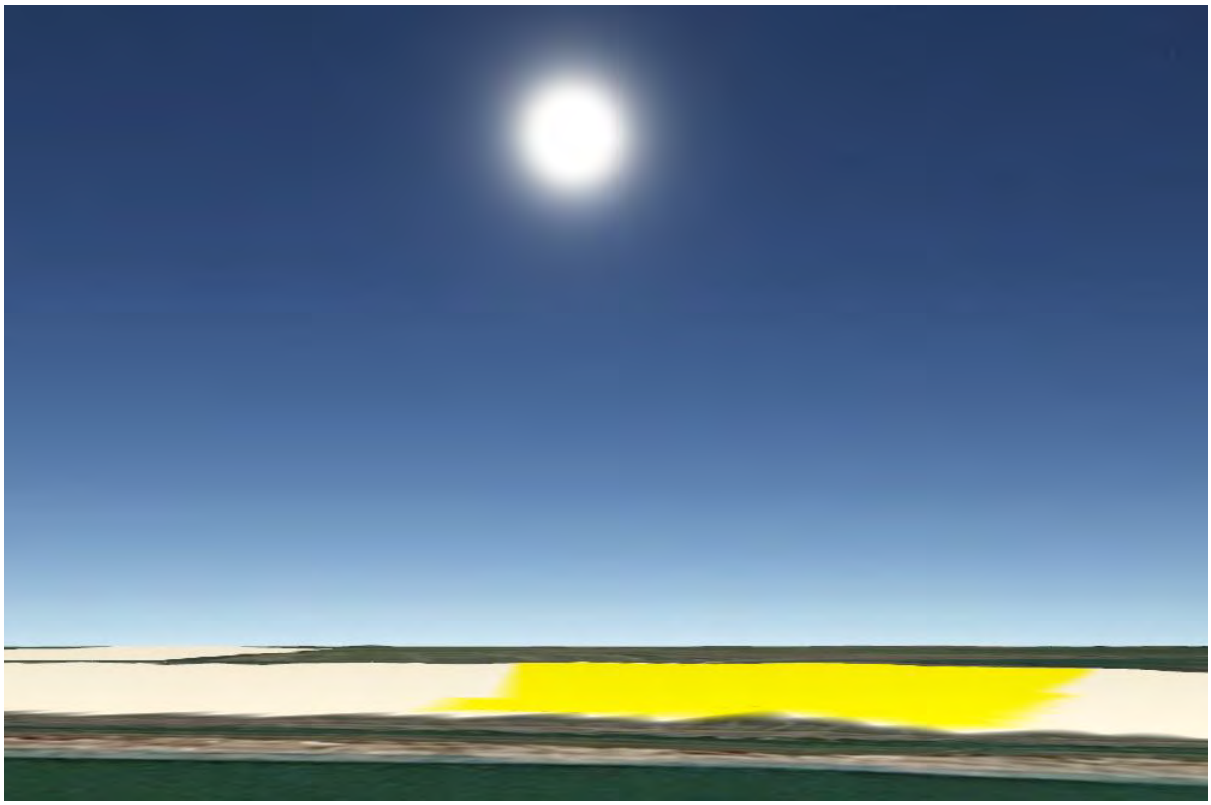


Annex Y: Solar Module Glare and Reflectance Technical Memo.

Annex Y

Solar Module Glare and Reflectance Technical Memo

Technical Notification

TITLE: SunPower Solar Module Glare and Reflectance
AUTHORS: Technical Support
APPLICATION: Residential/ Commercial
SCOPE: SunPower Modules

SUMMARY:

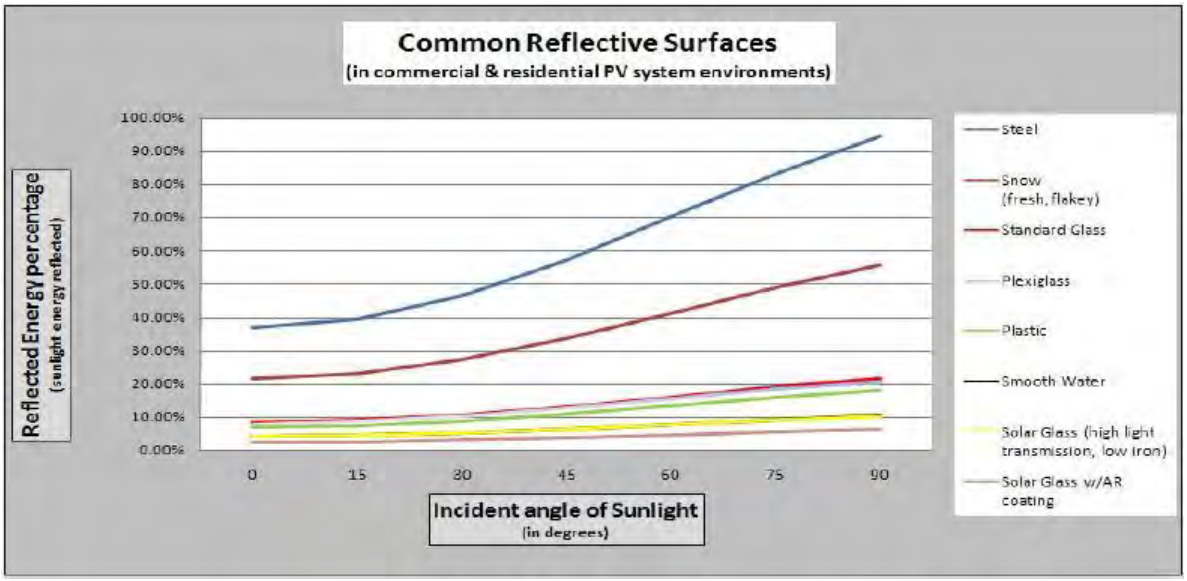
The objective of this document is to increase awareness concerning the possible glare and reflectance impact of PV Systems on their surrounding environment.

The glare and reflectance levels from a given PV system are decisively lower than the glare andreflectance generated by the standard glass and other common reflective surfaces in the environments surrounding the given PV system. Concerning random glare and reflectance observed from the air: SunPower has several large projects installed near airports or on air force bases. Each of these large projects has passed FAA or Air Force standards and all projects have been determined as "No Hazard toAir Navigation". Although the possible glare and reflectance from PV systems are at safe levels and are usually decisively lower than other standard residential and commercial reflective surfaces, SunPower suggests that customers and installers discuss any possible concerns with the neighbors/cohabitants near the planned PV system installation.

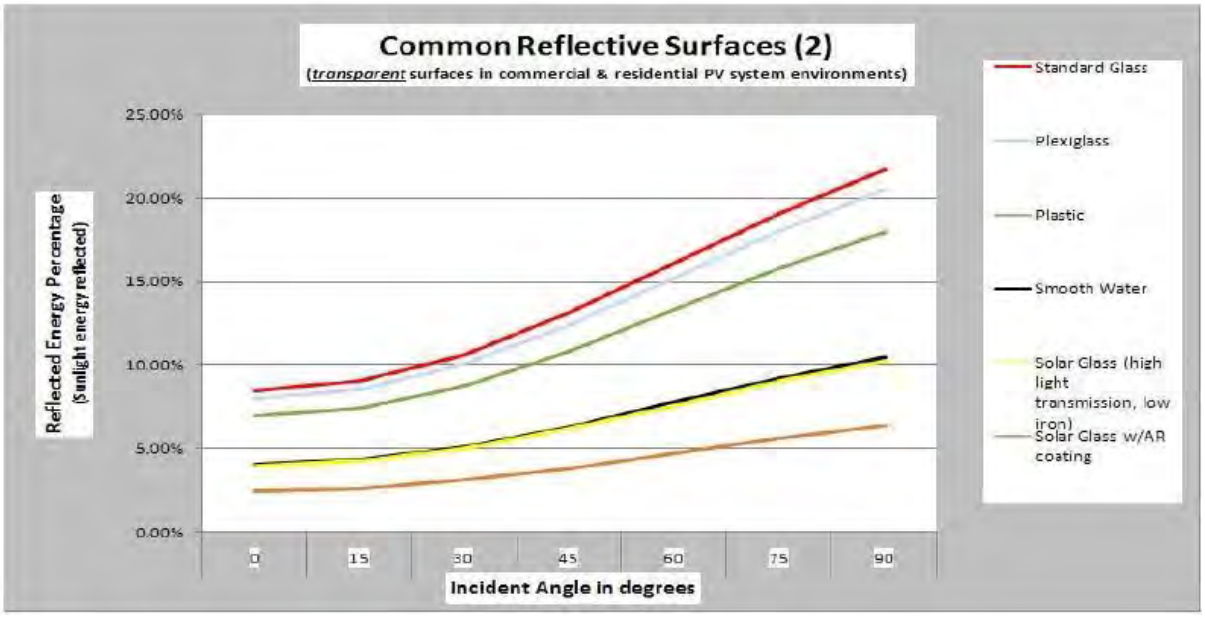
DETAILED EXPLANATION:

In general, since the whole concept of efficient solar power is to absorb as much light as possible while reflecting as little light as possible, standard solar module produces less glare and reflectance than standard window glass. This is pointed out very well in US Patent #6359212 which explains the differences in the refraction and reflection of solar module glass versus standard window glass. Solar modules use "high-transmission, low iron glass" which absorbs more light, producing small amounts of glare and reflectance than normal glass.

In the graph below, we show the reflected energy percentages of sunlight, of some common residential and commercial surfaces. The legend and the graph lists the items from top to bottom in order of the highest percentage of reflected energy.



It should be noted that the reflected energy percentage of Solar Glass is far below that of a standard glass and more on the level of smooth water. Also, below are the ratios of the common reflective surfaces:



Light beam physics resolves that the least amount of light is reflected when the beam is the normal, in other words, least light energy is reflected when the beam is at 0 degrees to the normal. The chart below is a result of light beam physics calculations:

Common Reflective Surfaces (in surrounding environments for PV systems)		Incident angle in degrees						
		0	15	30	45	60	75	90
Material Reflectivity (percent of incident light reflected)	Steel	36.73%	39.22%	46.34%	57.11%	70.02%	83.15%	94.40%
	Snow (fresh, flakey)	21.63%	23.09%	27.29%	33.63%	41.23%	48.96%	55.59%
	Standard Glass	8.44%	9.01%	10.65%	13.12%	16.09%	19.10%	21.69%
	Plexiglass	8.00%	8.54%	10.09%	12.44%	15.25%	18.11%	20.56%
	Plastic	6.99%	7.46%	8.82%	10.87%	13.33%	15.83%	17.97%
	Smooth Water	4.07%	4.35%	5.14%	6.33%	7.76%	9.22%	10.47%
	Solar Glass (high light transmission, low iron)	3.99%	4.26%	5.03%	6.20%	7.61%	9.03%	10.26%
	Solar Glass w/AR coating	2.47%	2.64%	3.12%	3.84%	4.71%	5.59%	6.35%

(Note: Index of refraction values may vary slightly depending on suppliers and reference documentation. The values for the above calculations are averages or single values obtained from the list of references for this document).

Important reference – "Stipples glass": In addition to the superior refractive/reflective properties of solar glass versus standard glass, SunPower uses stippled solar glass for our modules. Stippled glass is used with high powered telescopes and powerful beacons and lights. The basic concept behind stippling is for the surfaces of the glass to be textured with small types of indentations. As a result, stippling allows more light energy to be channeled/ transmitted through the glass while diffusing the reflected lightenergy. This concept is why the reflection of off a SunPower solar module will look hazy and less-defined than the reflection from standard glass, this occurs because the stippled SunPower glass is transmitting a larger percentage of light to the solar cell while breaking up the intensity of the reflected light energy.

SUMMARY / ACTION REQUIRED:

The studies, data and light beam physics behind the charts and graphs prove beyond a reasonable doubt that solar glass has less glare and reflectance than standard glass. The figures also make it clear that the difference is very decisive between solar glass and other common residential/commercial glasses. In addition, not to be lost in the standard light/glass equations and calculations, the SunPower solar glass is stippled and has a very photon-absorbent solar cell attached to the back side, contributing two additional factors which results in even less light energy being reflected.

REGIONAL CONTACTS:

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EU Toll Free number: SunPower Technical Support, 00800–SUNPOWER (00800–78676937)

- For inquiries by e-mail, please use:
  - Spain: SunPower – Soporte Técnico España: soportetecnico@sunpowercorp.com
  - Germany: SunPower – Technischer Support: technischersupport@sunpowercorp.com
  - Italy: SunPower – Servizio Tecnico Italia: serviziotecnico@sunpowercorp.com
  - France: SunPower – Support Technique France: supporttechnique@sunpowercorp.com

USA Toll Free number: SunPower Technical Support, 1-800–SUNPOWER (786-76937)

- For inquiries by e-mail, please use: Technicalsupport@Sunpowercorp.com

Australia (Sunpower Corporation Australia PTY LTD) contact number: +61-8-9477-5888.

Korea – SPK (SunPower Korea) contact number: (02) 3453-0941

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