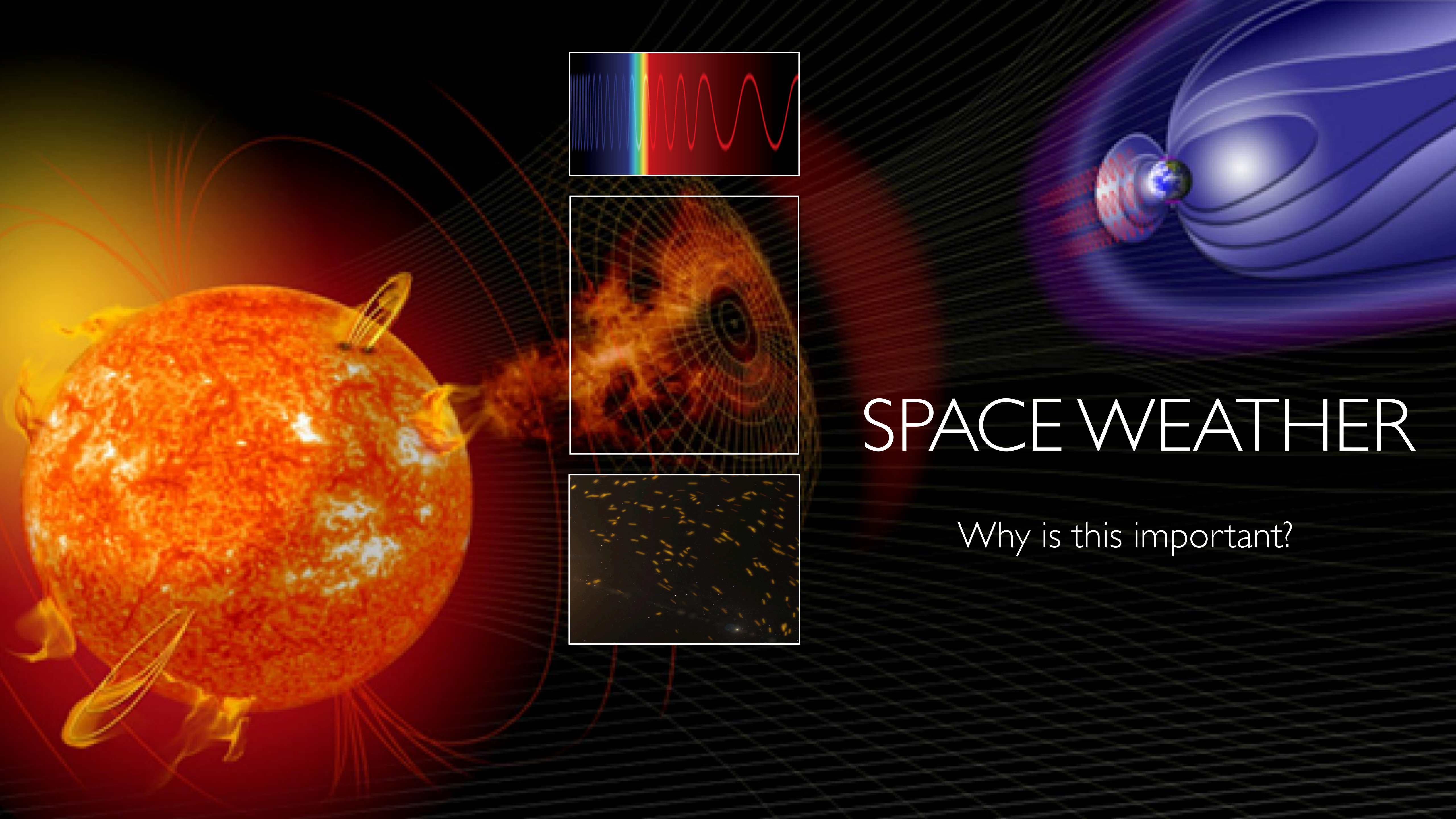


Role of the Ionosphere & SPWx in Military Communications



Petra Vanlommel
Solar-Terrestrial Centre of Excellence (STCE)



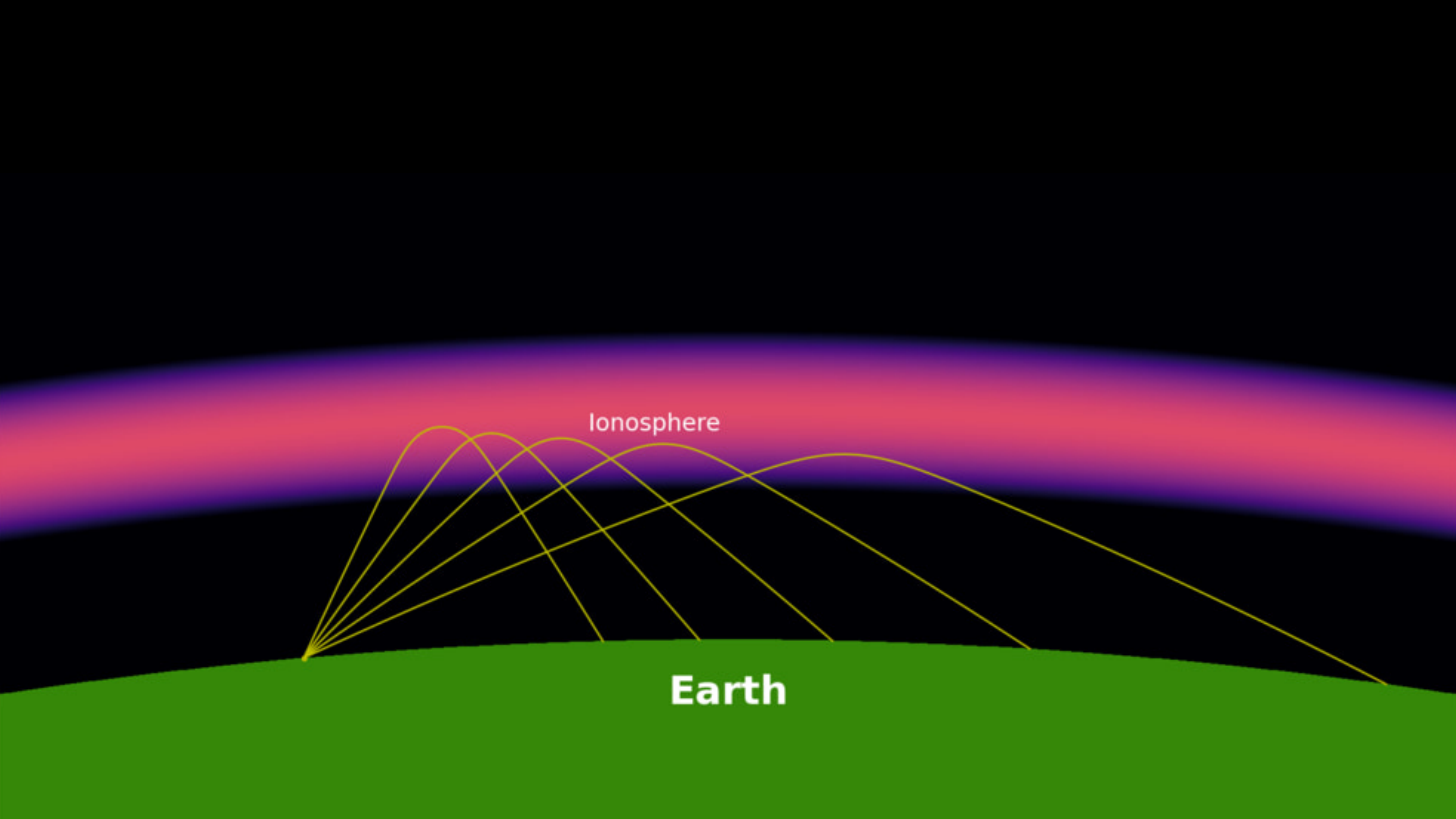
SPACE WEATHER

Why is this important?

May 15, 2024



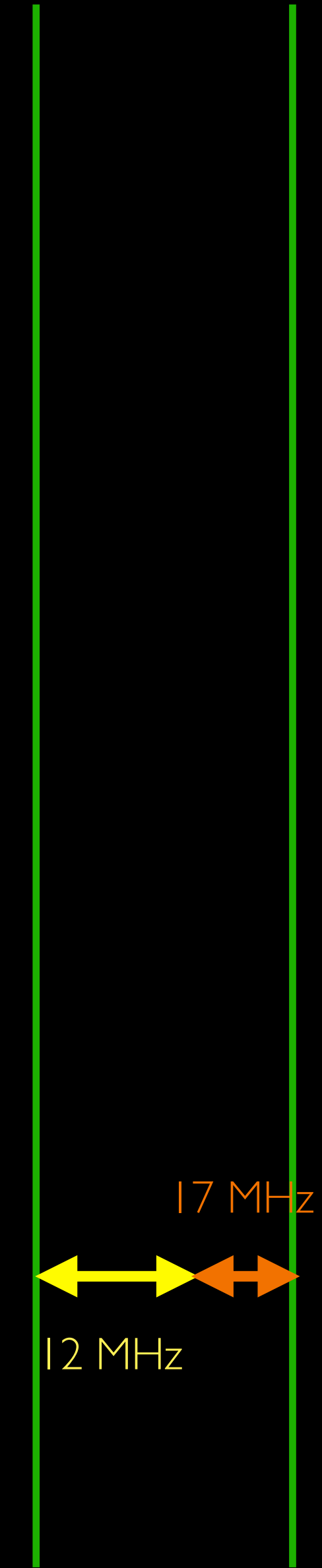
DEFENSIE



Ionosphere

Earth

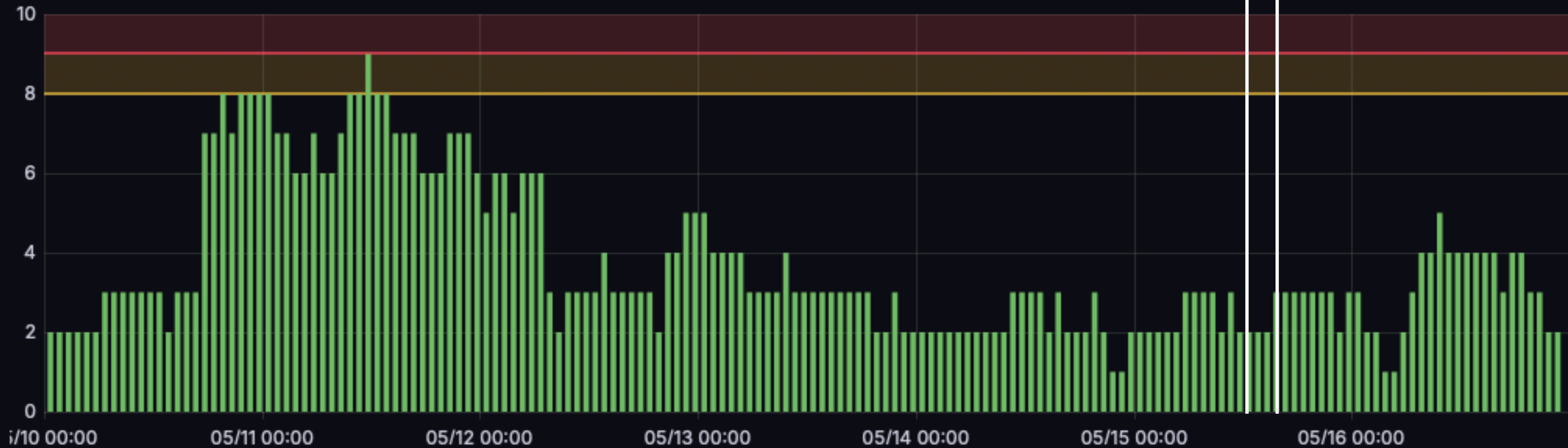
After Mother's day storm - May 15, 2024



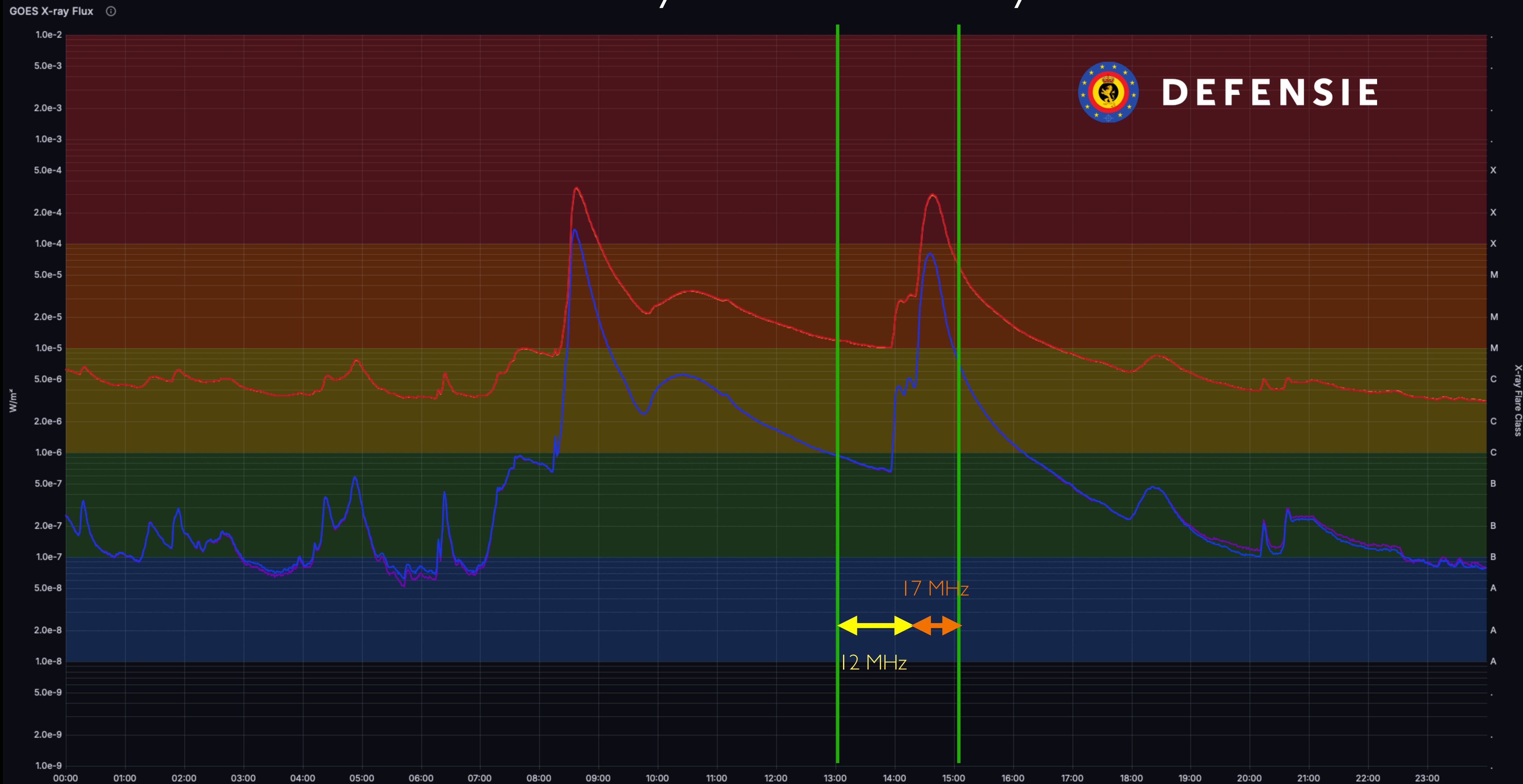
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

After Mother's day storm - May 15, 2024


K Belgium ⓘ

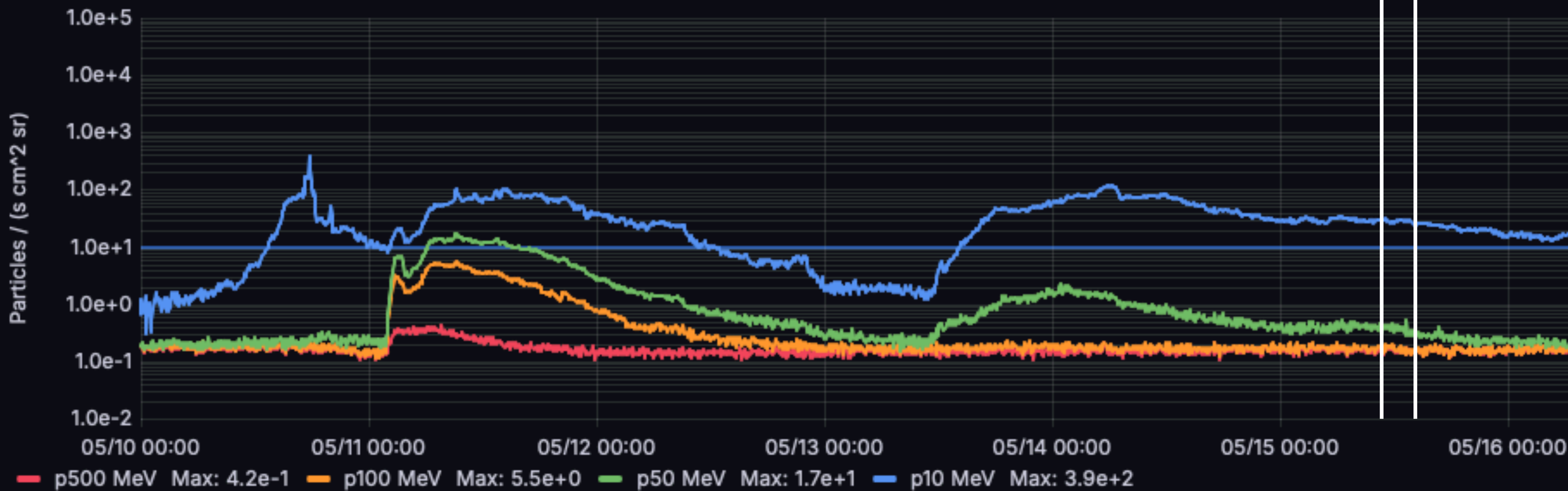


After Mother's day storm - May 15, 2024

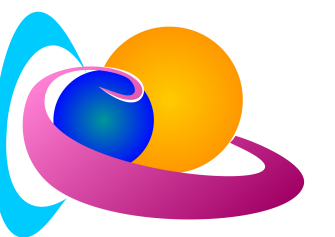


After Mother's day storm - May 15, 2024

GOES-16 Proton Flux 

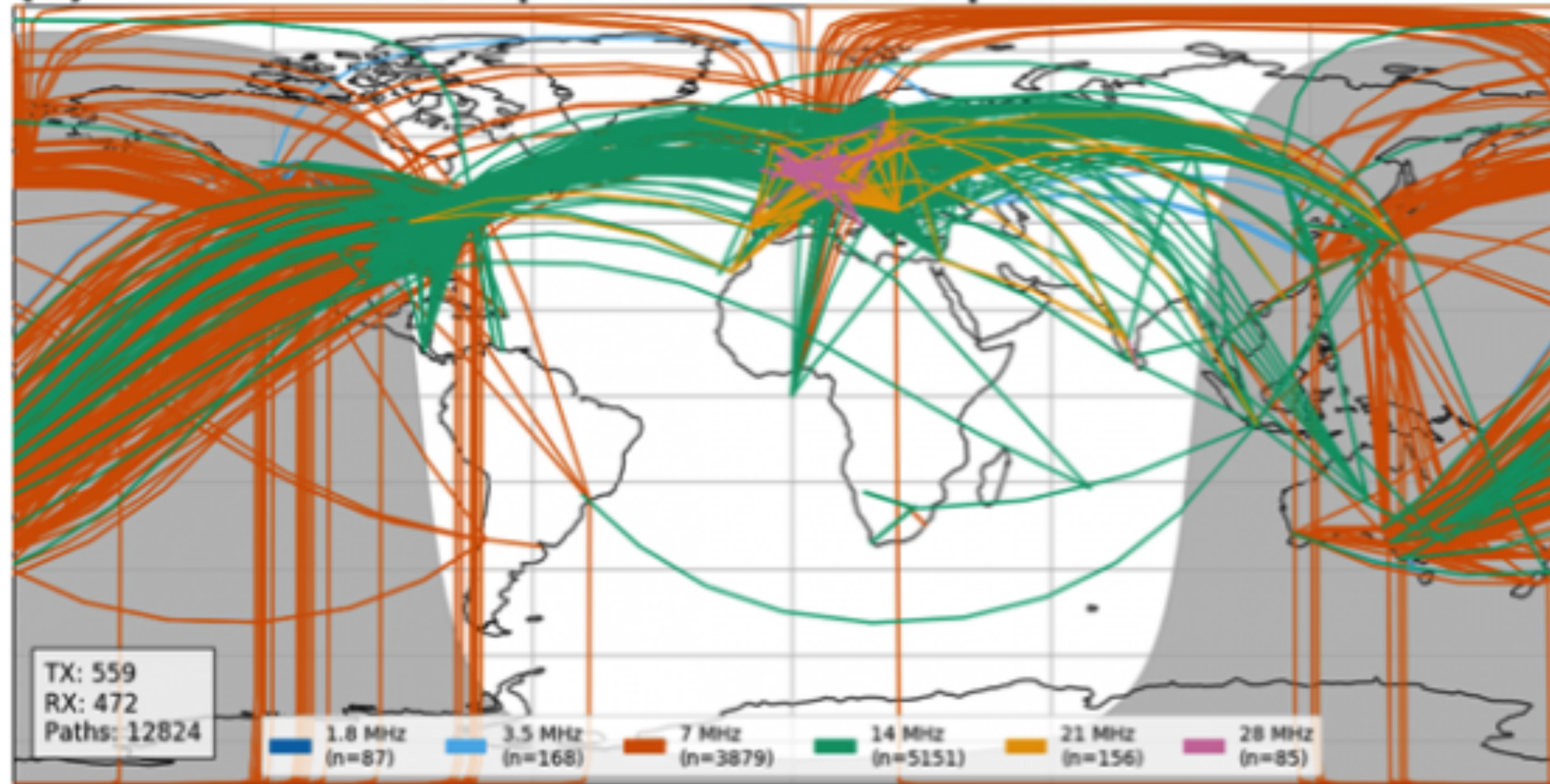


Sept 2017 - Hurricane train



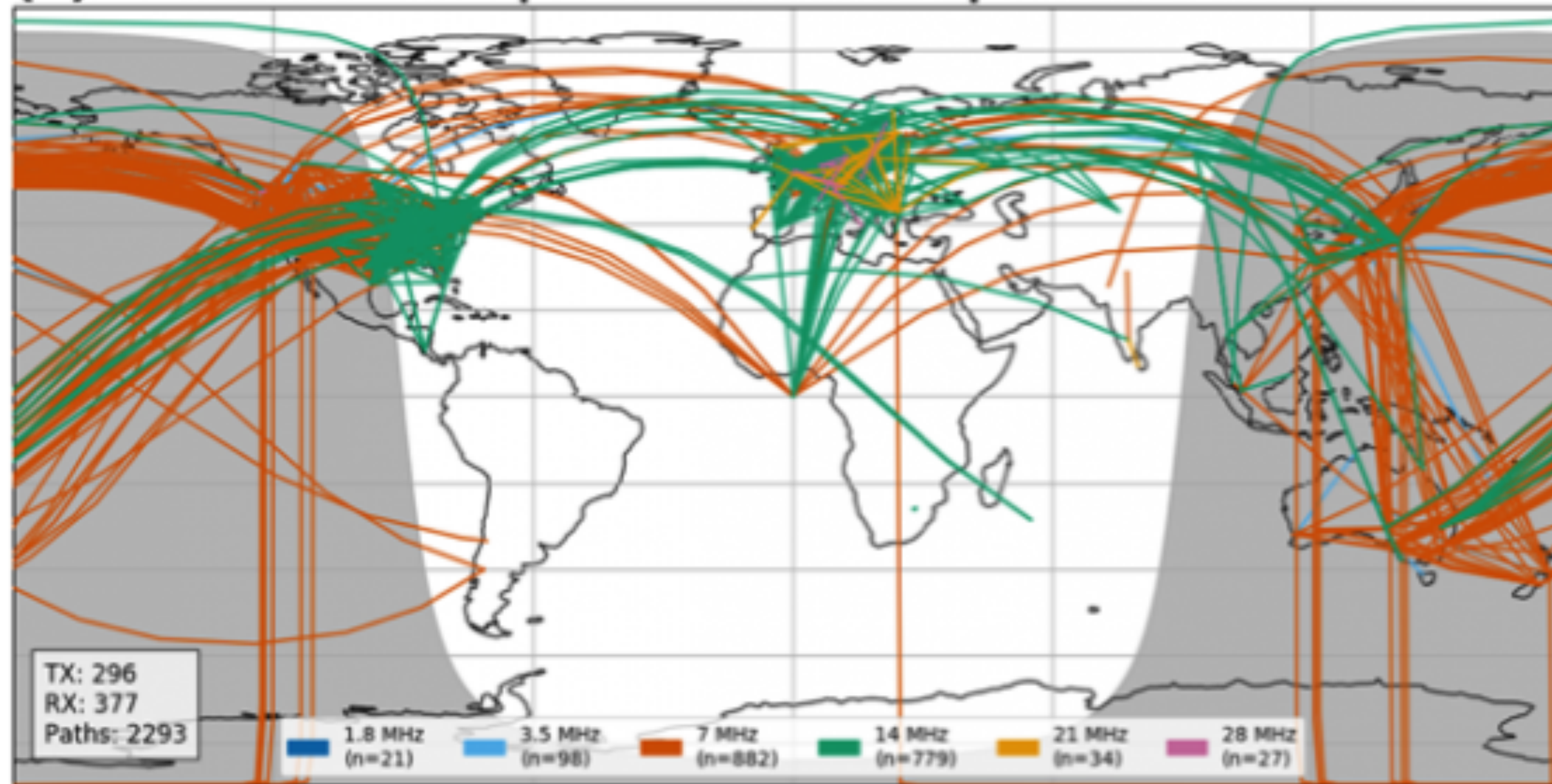
(a)

2017 Sep 06 1138 UT - 2017 Sep 06 1153 UT

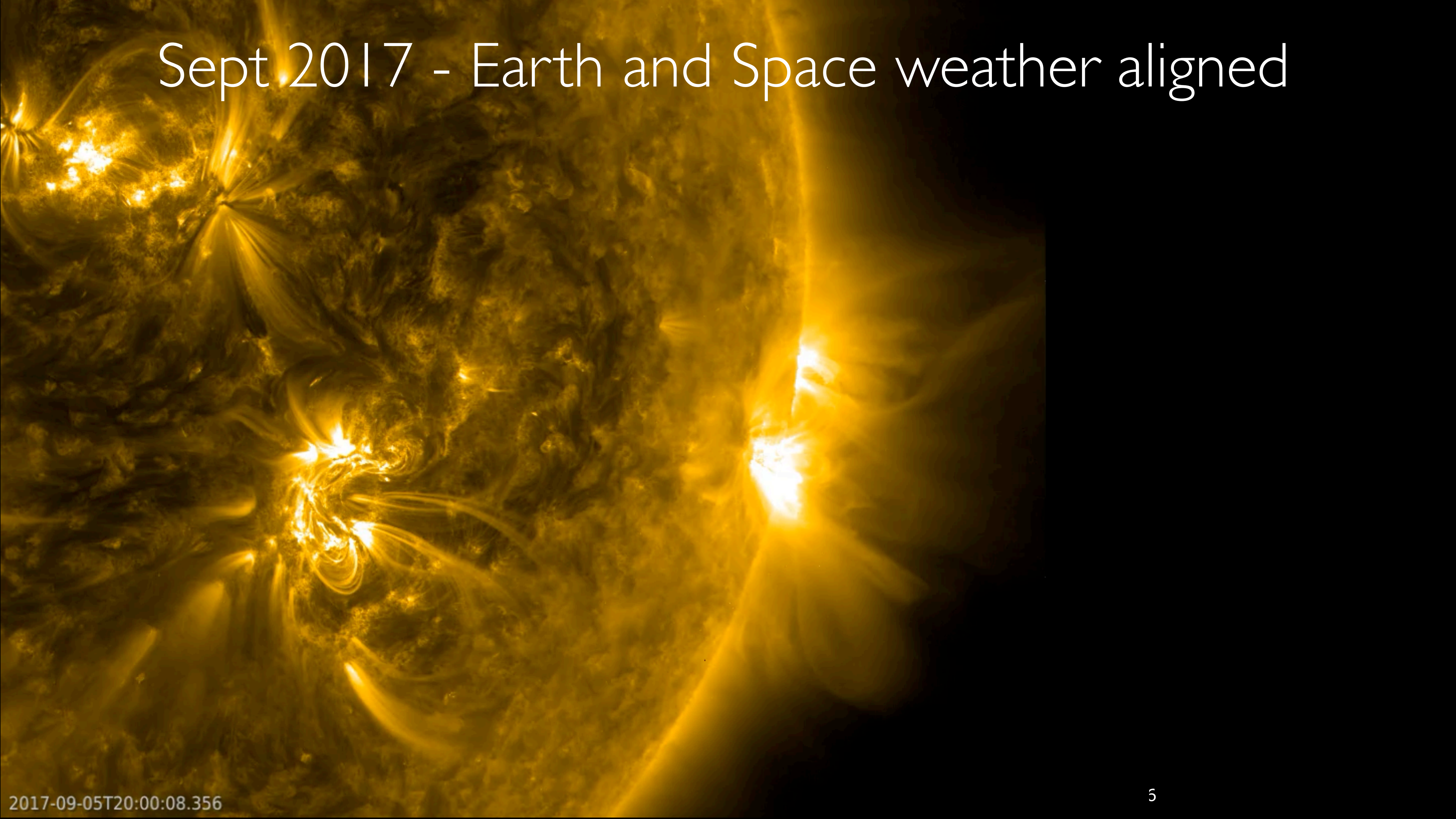


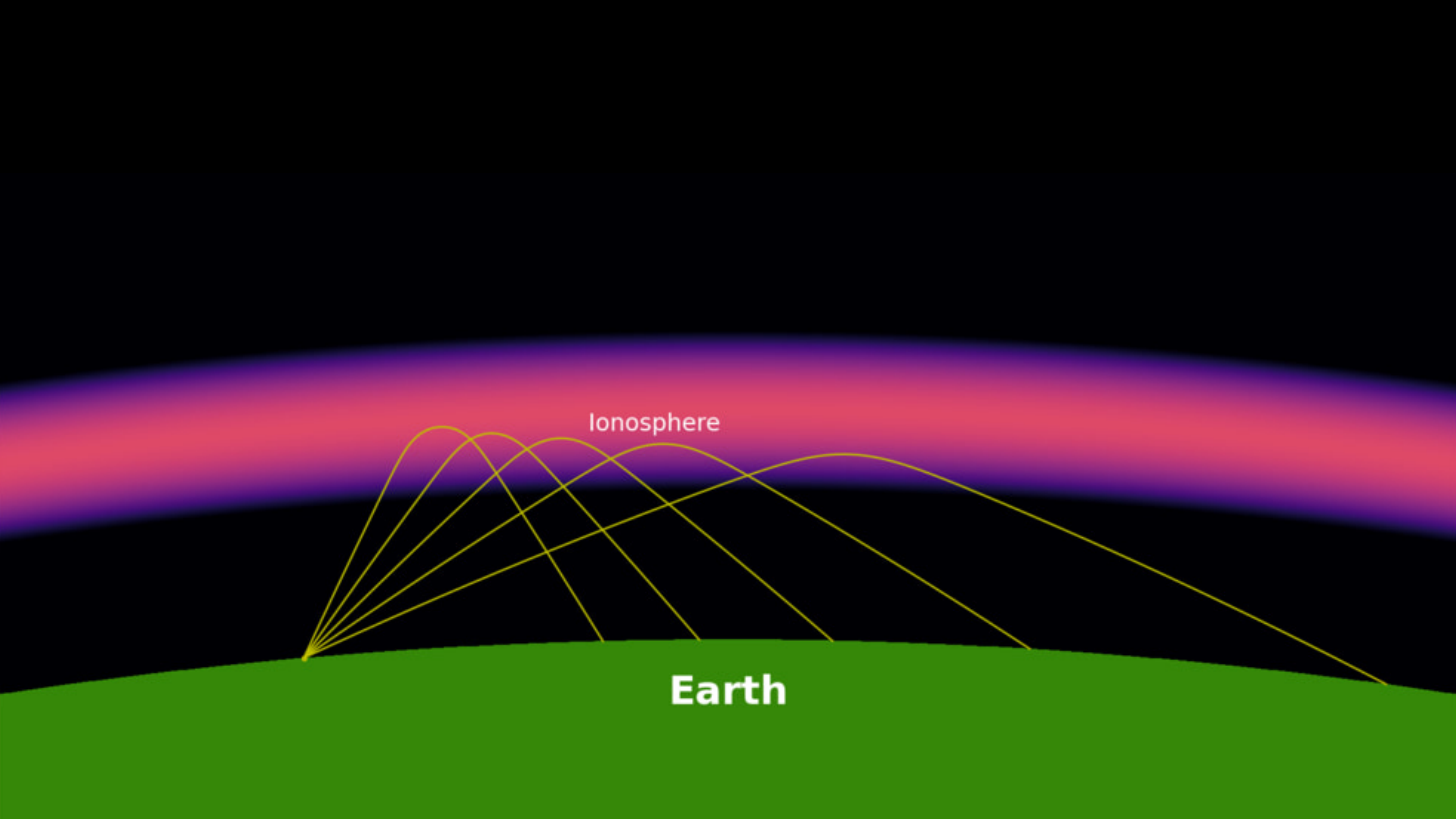
(b)

2017 Sep 06 1153 UT - 2017 Sep 06 1208 UT



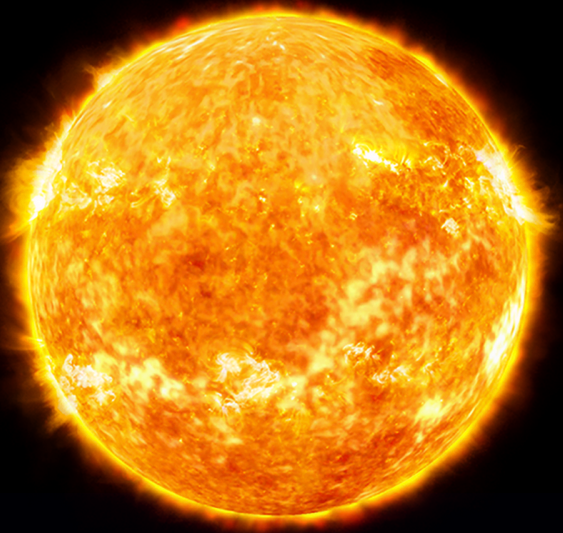
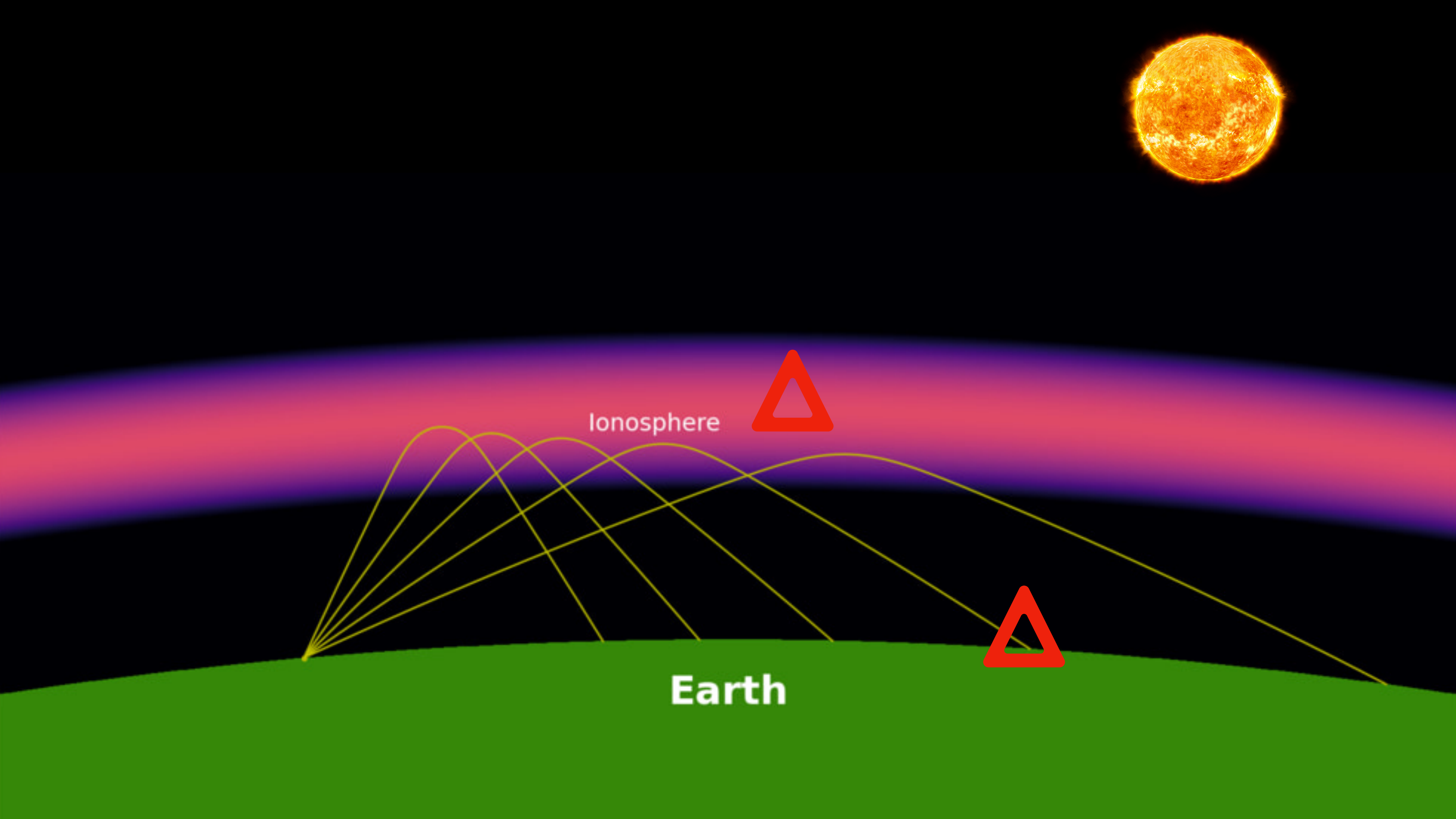
Sept 2017 - Earth and Space weather aligned





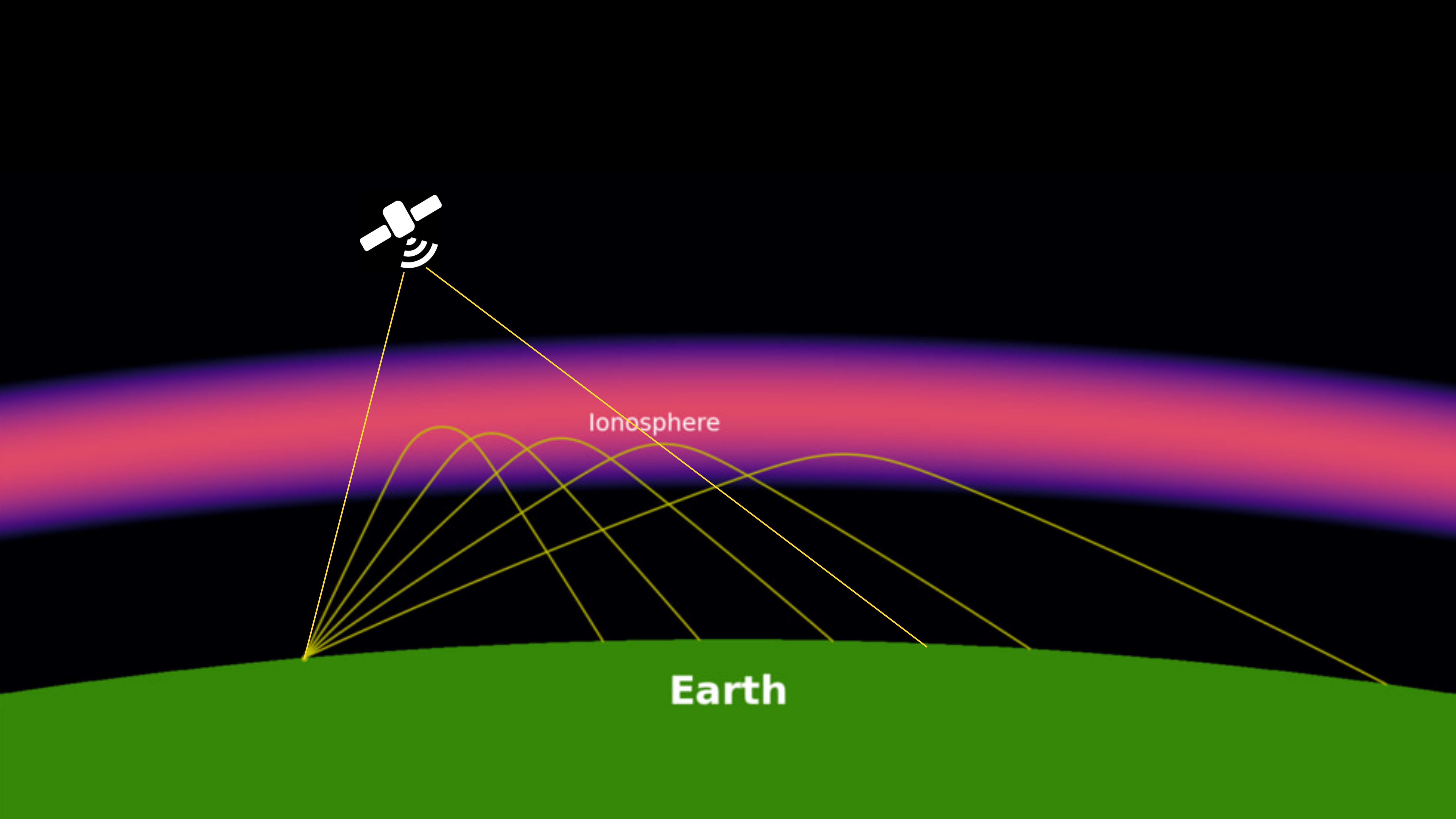
Ionosphere

Earth



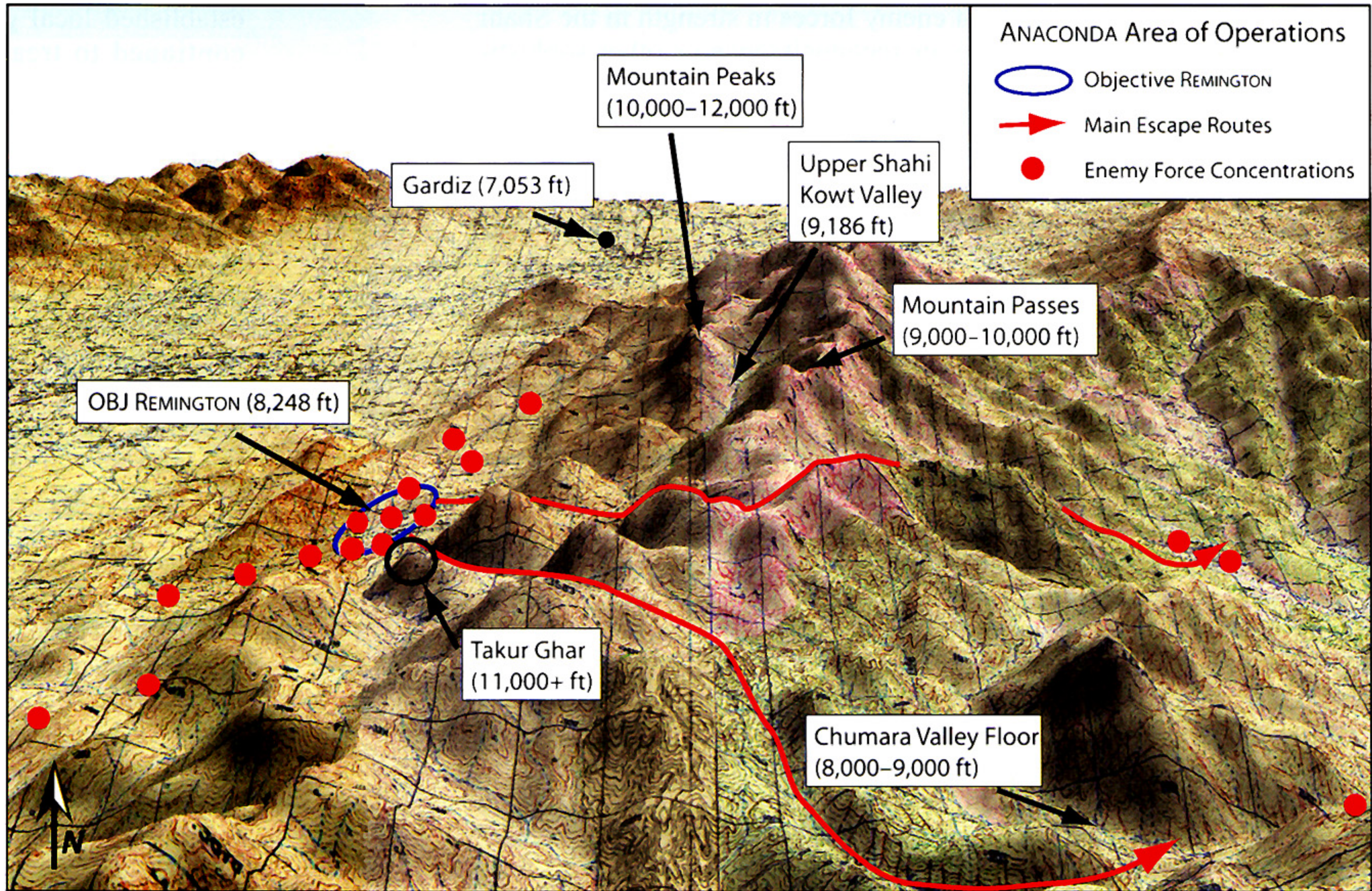
Ionosphere

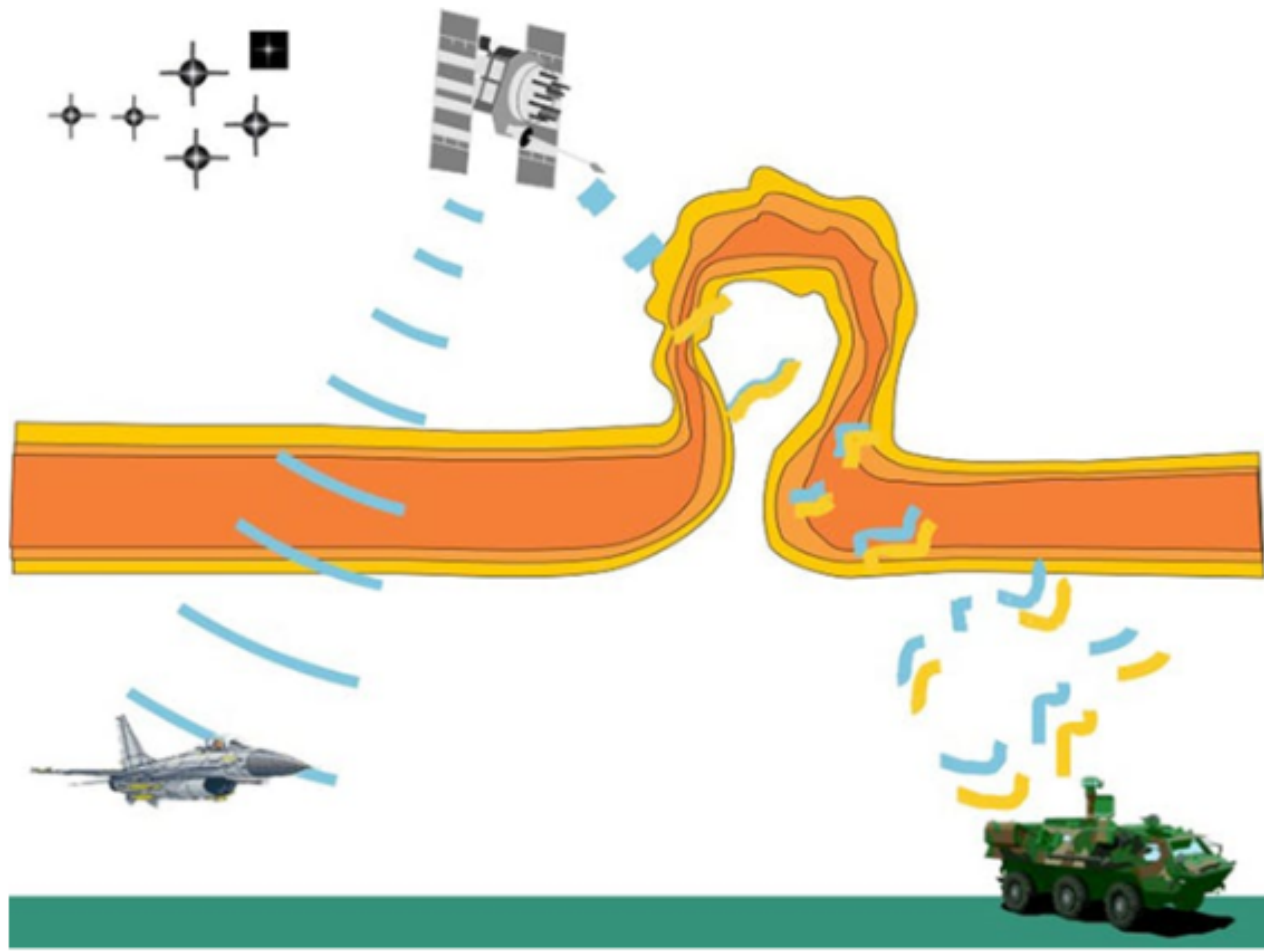
Earth

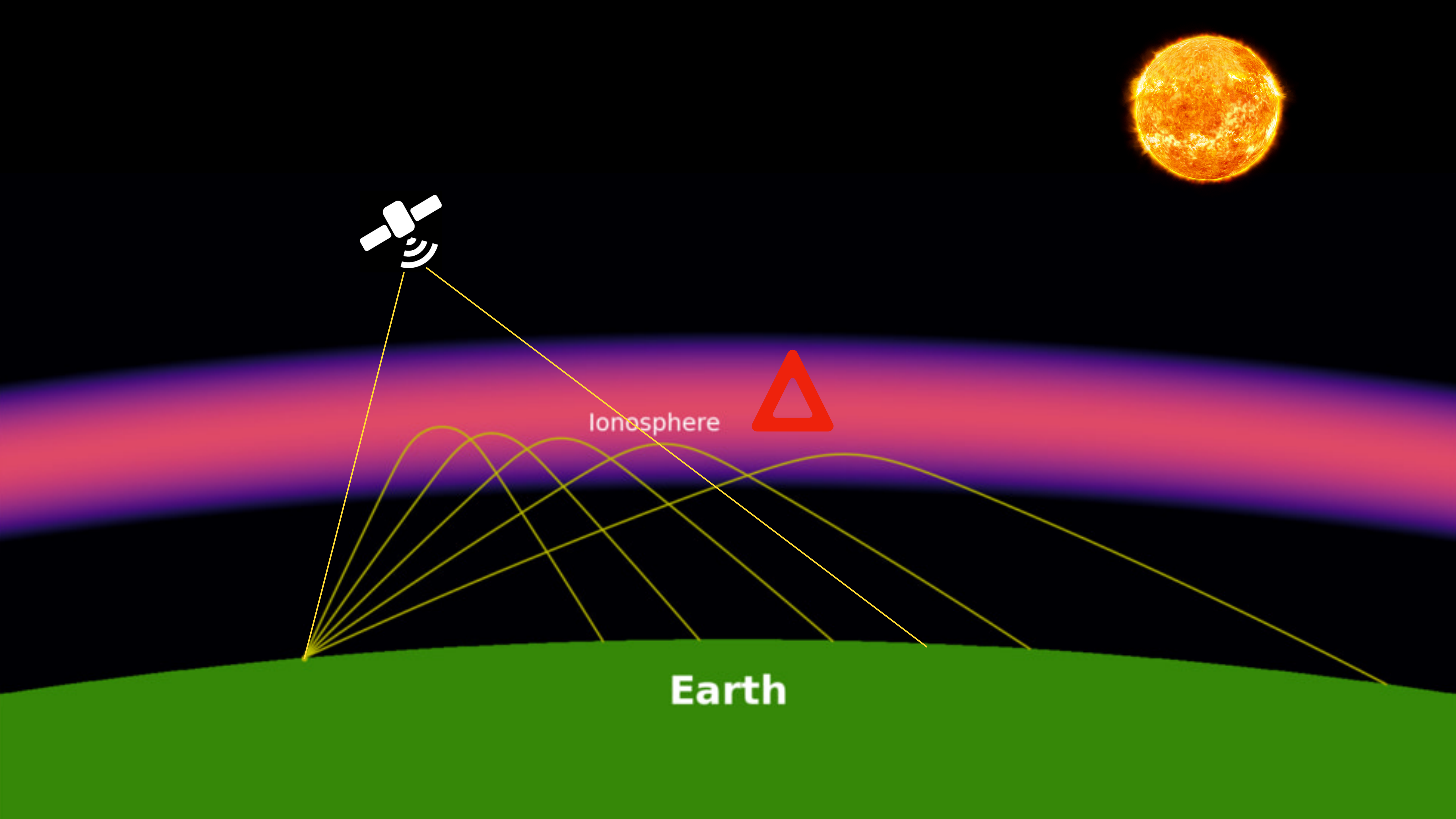


Ionosphere

Earth







Ionosphere

Earth

Galaxy

April 2010

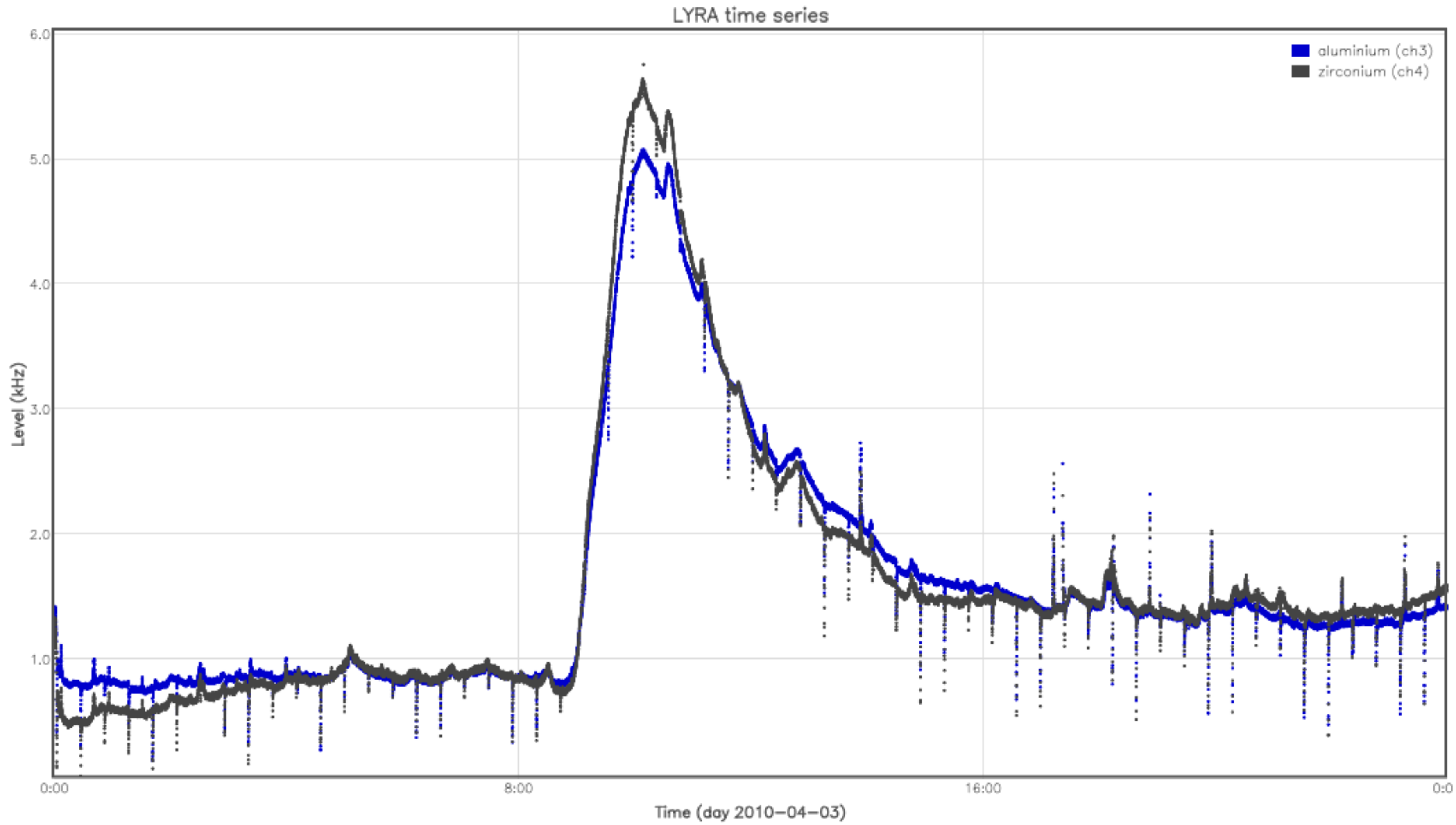


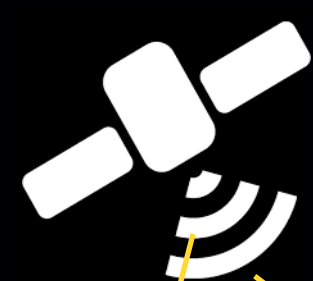
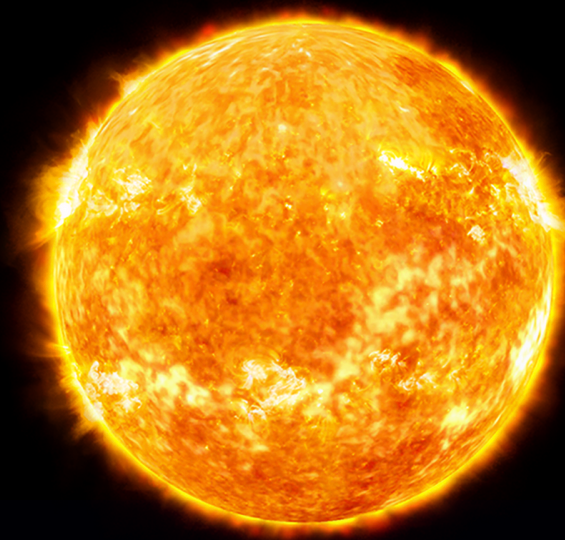
As you are aware there was a very interesting geomagnetic storm period over the Easter period this year, this period was particularly significant as the disturbed space environment caused a number of spacecraft anomalies, including the well publicised Galaxy 15 failure suffered by our competitor Intelsat. The Presto Alerts and Daily Bulletins ('URSIGRAM') issued by SIDC at the time were superior to alternative products issued by NOAA SWPC, both in terms of timeliness and content.

In general I find that the level of technical content and commentary included in your Daily Bulletins and other products are exactly what we need as a spacecraft operator, and I find that these products compare very favourably with the alternative products issued by NOAA SWPC. You are tending to include greater detail in your commentary regarding events observed on the sun and the effects likely to be experienced at earth, we value this additional detail.

I hope these comments are of use and trust that your team will keep up the good work!

April 3, 2010

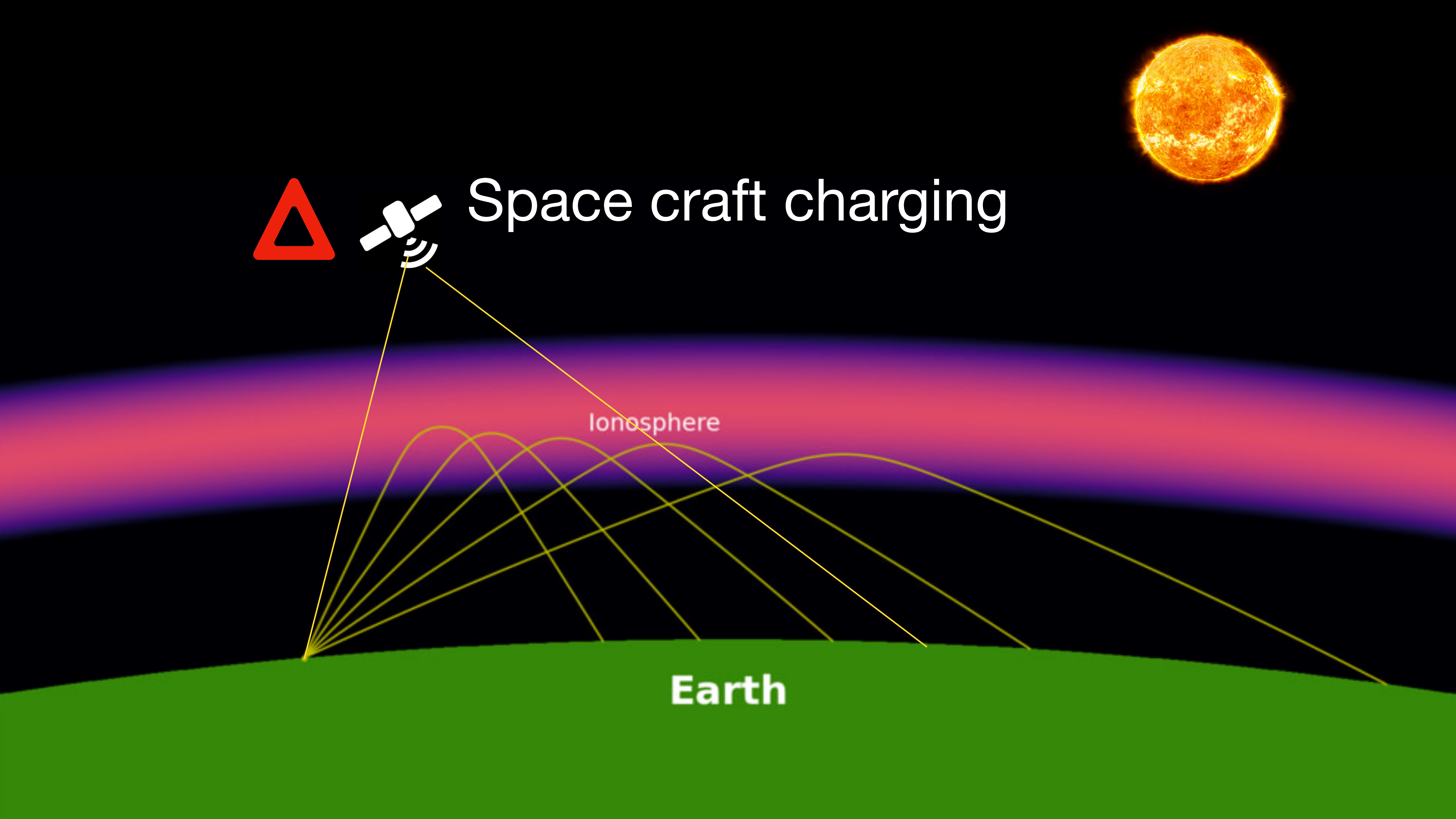




Space craft charging

Ionosphere

Earth



Los of altitude due to drag

Wed, Oct 12, 2022

Newsweek

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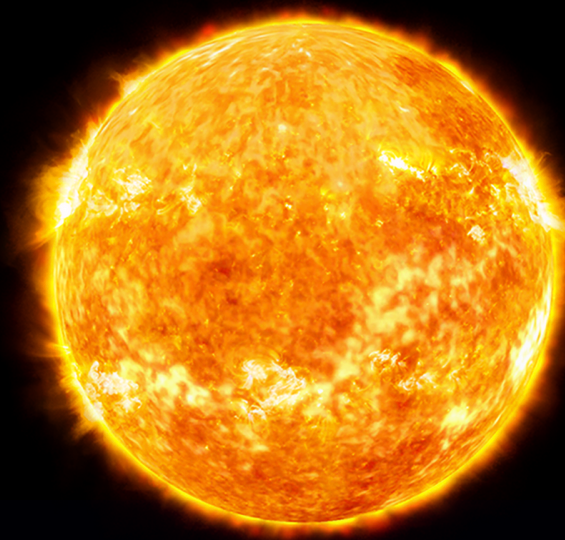
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TECH & SCIENCE

'Destruction Event' From Sun Annihilated Dozens of SpaceX Satellites

BY ED BROWNE ON 9/16/22 AT 5:38 AM EDT



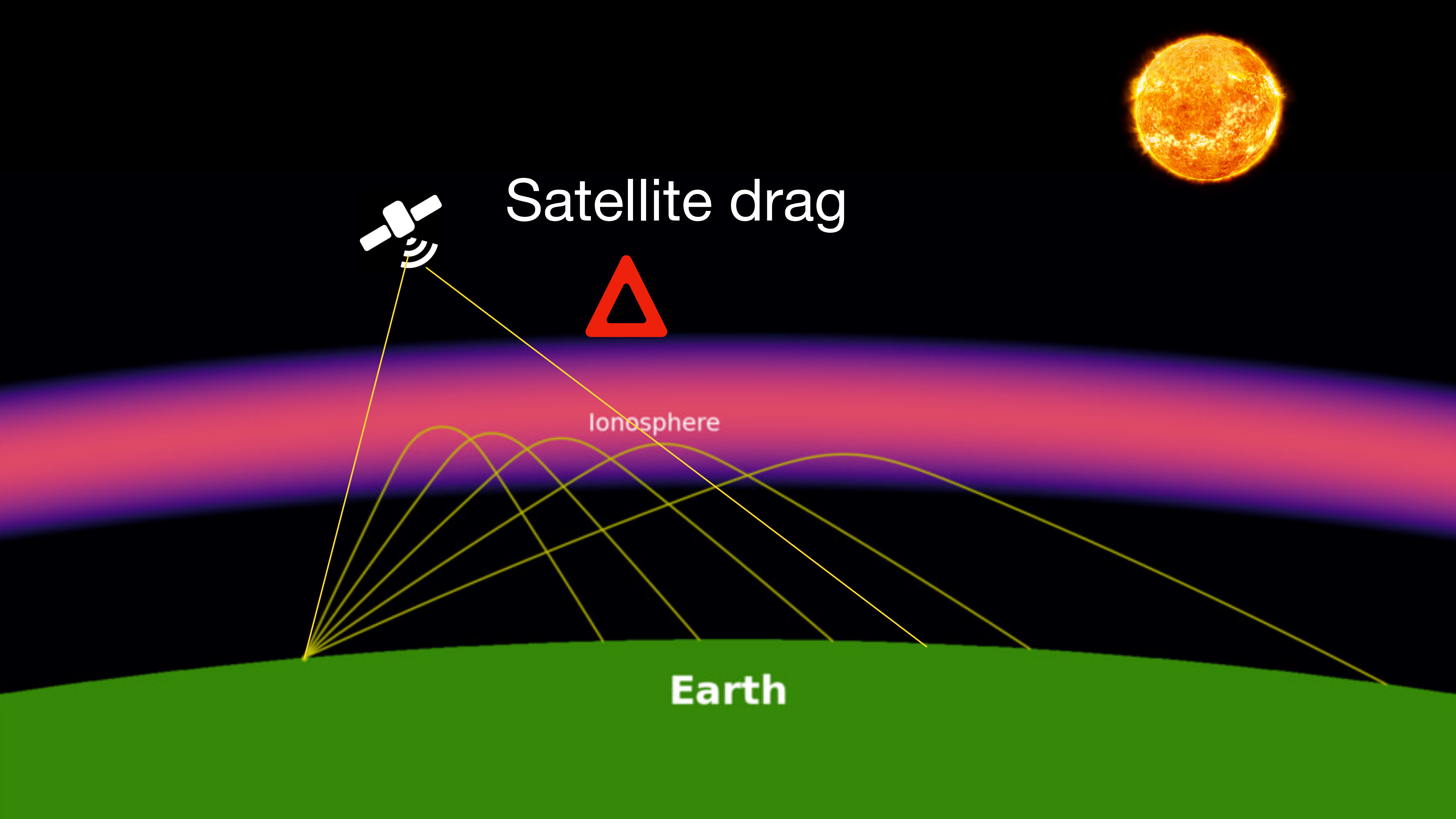


Satellite drag



Ionosphere

Earth



Things are not always what they seem.

