



GeoXO Mission Update

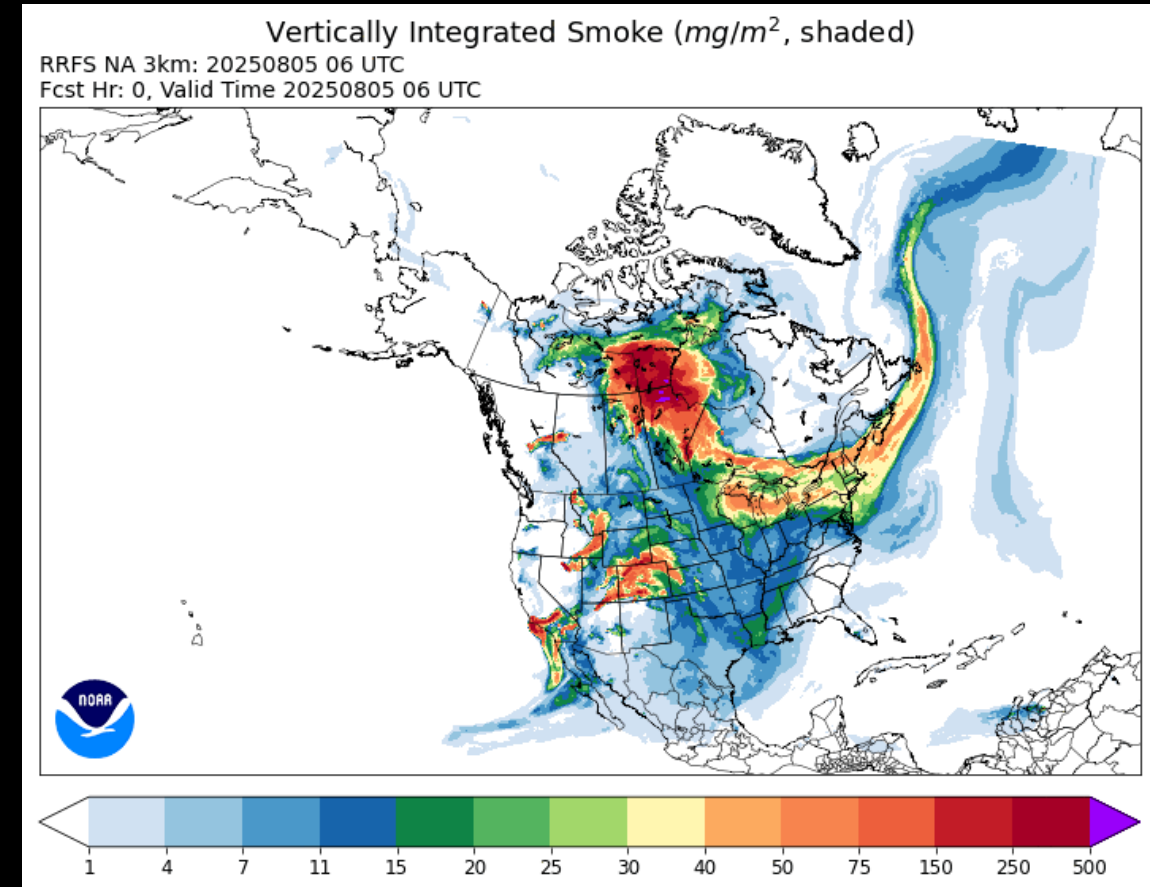
Presented by Shobha Kondragunta
for
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GEO Senior Scientist

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GOES-R Update

- GOES-19 entered operational service as GOES East on April 7, 2025
- GOES-18 continues to serve as GOES West
- GOES-16 is the primary on-orbit backup
- GOES-17 is an additional spare



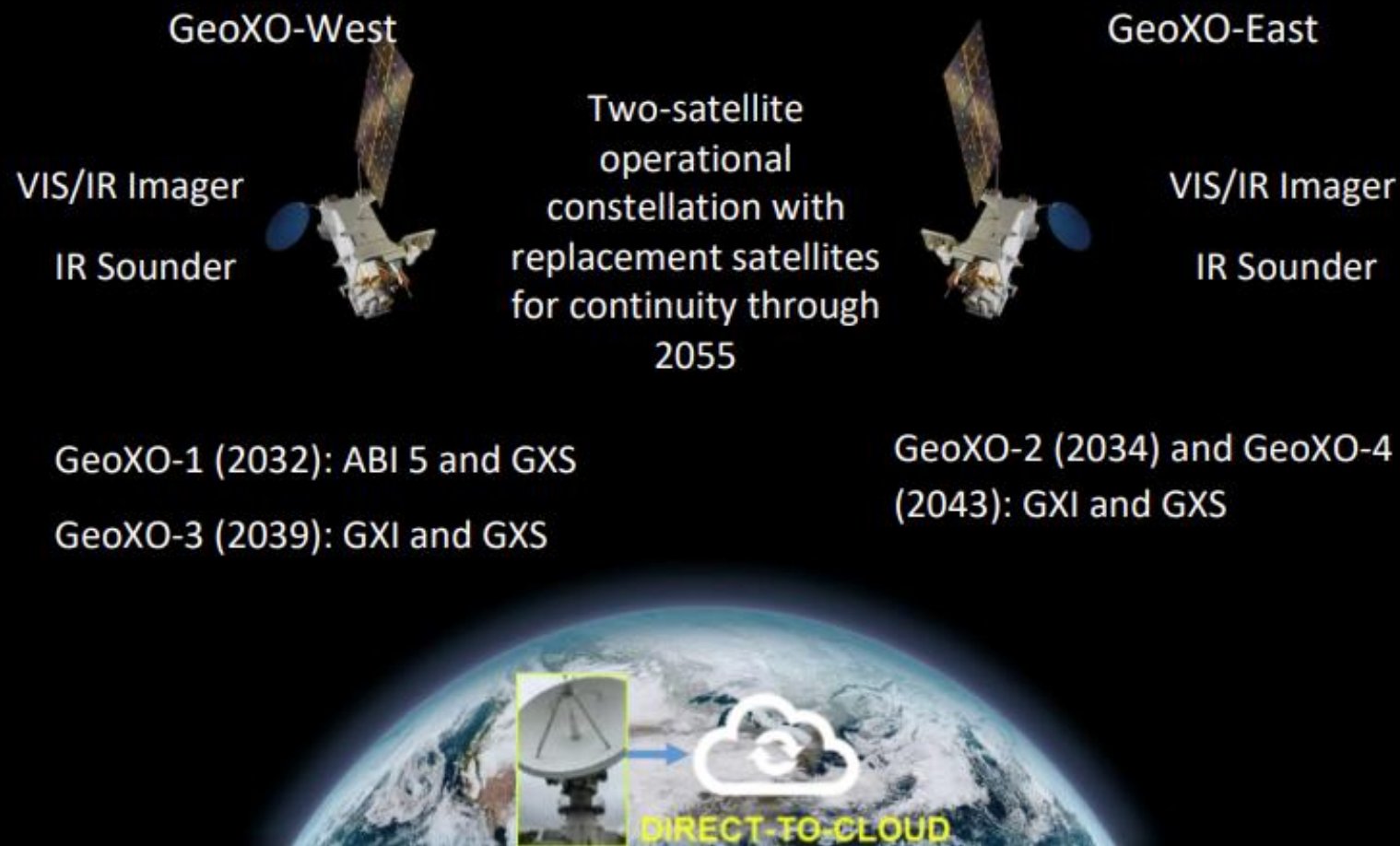
Ravan Ahmdov, OAR GSL



GeoXO Baseline

PENDING APPROVALS:

- Restructured program in August 2025 to prioritize weather observations
- Two satellite constellation (East and West) provides full disk imagery and sounding through 2055
- First launch planned for 2032
- Continuity of imaging driving 2032 launch prioritization



GXI Introduction

- GXI is an improved version of the GOES-R ABI.
 - multiple channels have a finer spatial resolution (*even IR bands*) including a 250 m visible band.
 - two new channels focused on low-level water vapor.
- Temporal scanning options remain (*10 min FD, 5 min CONUS, 1 min MESO*).
- First GeoXO imager is an ABI.
- Vendor is L3Harris, same as ABI

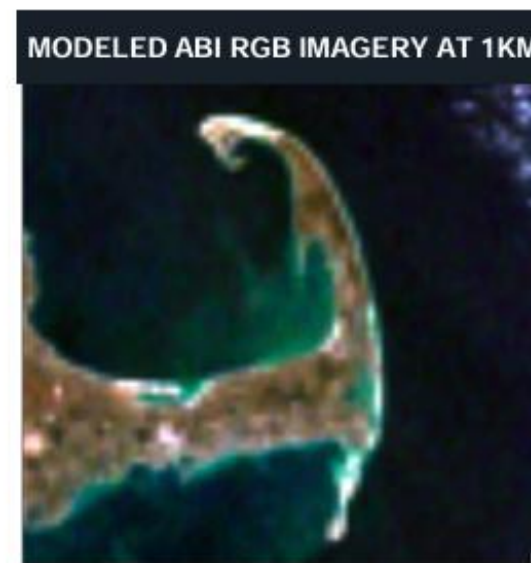
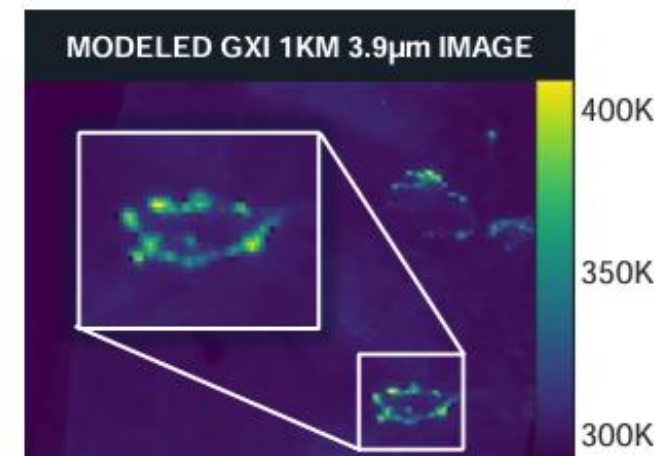
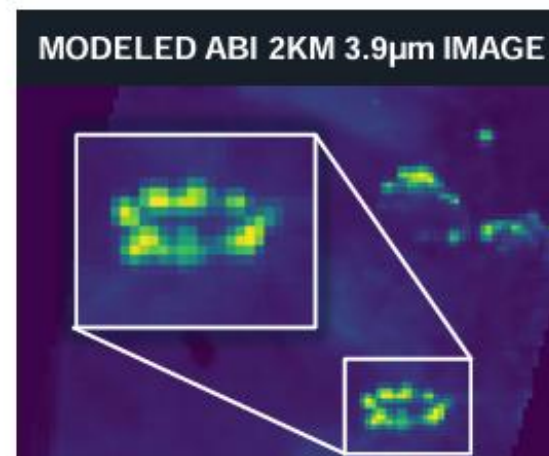
Wavelength (μm)		Band	GSD
VNIR	0.47	Band 1	0.5 km
	0.64	Band 2	0.25 km
	0.865	Band 3	0.5 km
	0.91	Band 4	1 km
	1.378	Band 5	2 km
	1.61	Band 6	1 km
MWIR	2.25	Band 7	1 km
	3.9	Band 8	1 km
	5.15	Band 9	1 km
	6.185	Band 10	2 km
	6.95	Band 11	1 km
	7.34	Band 12	2 km
LWIR	8.50	Band 13	2 km
	9.61	Band 14	2 km
	10.35	Band 15	1 km
	11.20	Band 16	2 km
	12.30	Band 17	2 km
	13.30	Band 18	2 km

 = New for GXI relative to ABI

GXI includes spatial resolution enhancements representing a 4x improvement over existing ABI resolution



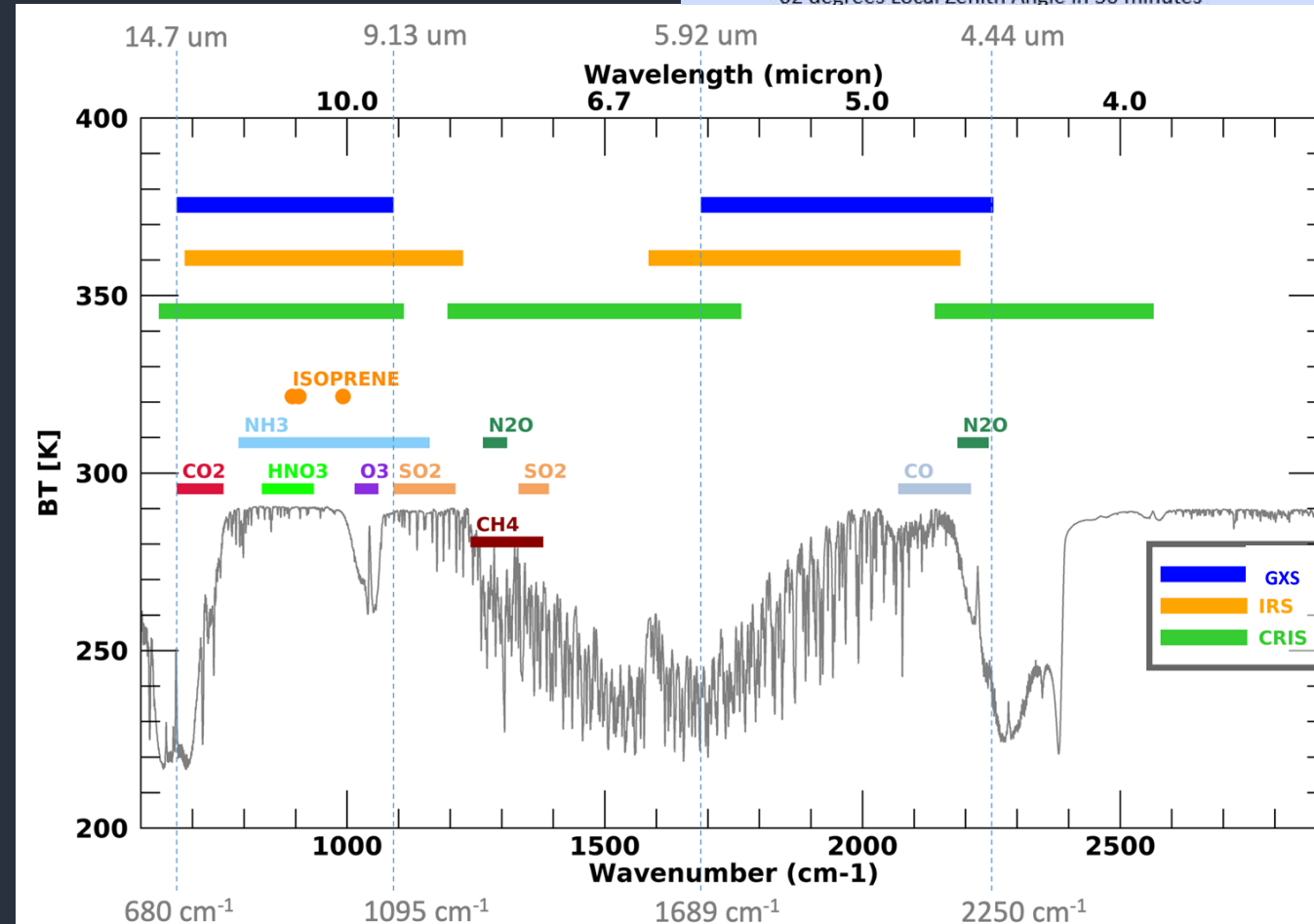
- Enhancing 0.64 μm band to 250 m resolution improves severe weather forecasting by helping to identify smaller cumulus cloud features
- Increasing resolution in 2.25 μm band improves daytime cloud and land imaging
- Improving remaining bands that contribute to RGB imagery to 0.5 km spatial resolution improves the RGB product
- Increasing 10.35 μm spatial resolution improves multiple products including day/night cloud feature identification and cloud mask products
- Increasing 6.95 μm band spatial resolution to 1 km improves characterization of turbulence
- Increasing 3.90 μm band to 1 km allows GXI to provide improved tracking of fire progression



Baseline Requirements: IR Sounder(GXS)



Baseline Requirements	
GSD	4 km (<i>Same as GOES-13 Imager IR</i>)
Coverage Area	Sounding Disk (SD) defined by a 62° zenith angle centered at 75W & 135W
Revisit Time	60 minutes
Spectral Coverage	4.44-5.92μm, 9.13-14.7μm
Spectral Resolution	0.625 cm ⁻¹
Signal:Noise	NEdN requirements are comparable to those of other IR hyperspectral sounders



Conclusions

- GeoXO has a new baseline consisting of imagers and sounders in the East and West positions from 2032 to 2055.
- GXI is an improved version of ABI with 2 new channels and multiple channels at finer spatial resolution.
- GXS (IR sounder) is similar to other geostationary hyperspectral sounders being flown by EUMETSAT and JMA and includes observations of key atmospheric gases.
- Atmospheric composition in the GeoXO era was always planned as a multi-instrument strategy. Despite the descoping of ACX and most likely the GLX, the combination of GXI and GXS on both East and West satellites will provide us with an opportunity for atmospheric composition monitoring to improve weather and air quality.



Thank You!

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