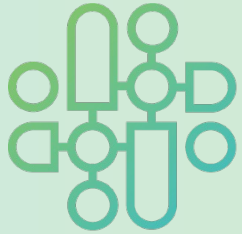

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Space Weather Forecasting using Celery and Django

Dr Jenny Wong (she/her)

Senior Research Software Engineer

University of Birmingham, UK

UNIVERSITY OF BIRMINGHAM

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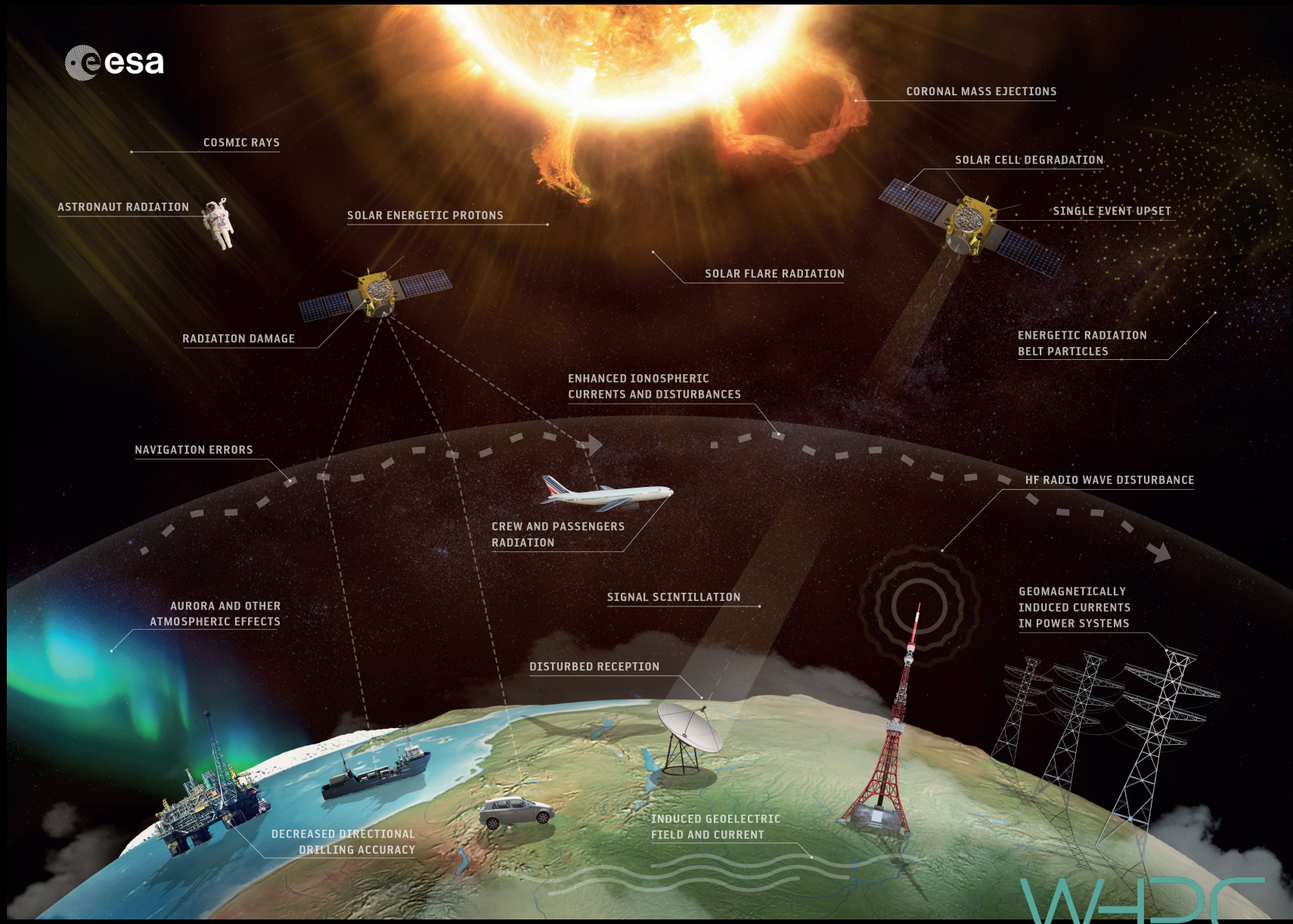
Space Weather Forecasting

- Forecasting space weather conditions in the Earth's ionosphere is critical to protecting key infrastructure
- Variations in space weather are caused by Coronal Mass Ejections from the Sun's surface
- Produces disturbances in communications and electrical systems, as well as spectacular aurorae



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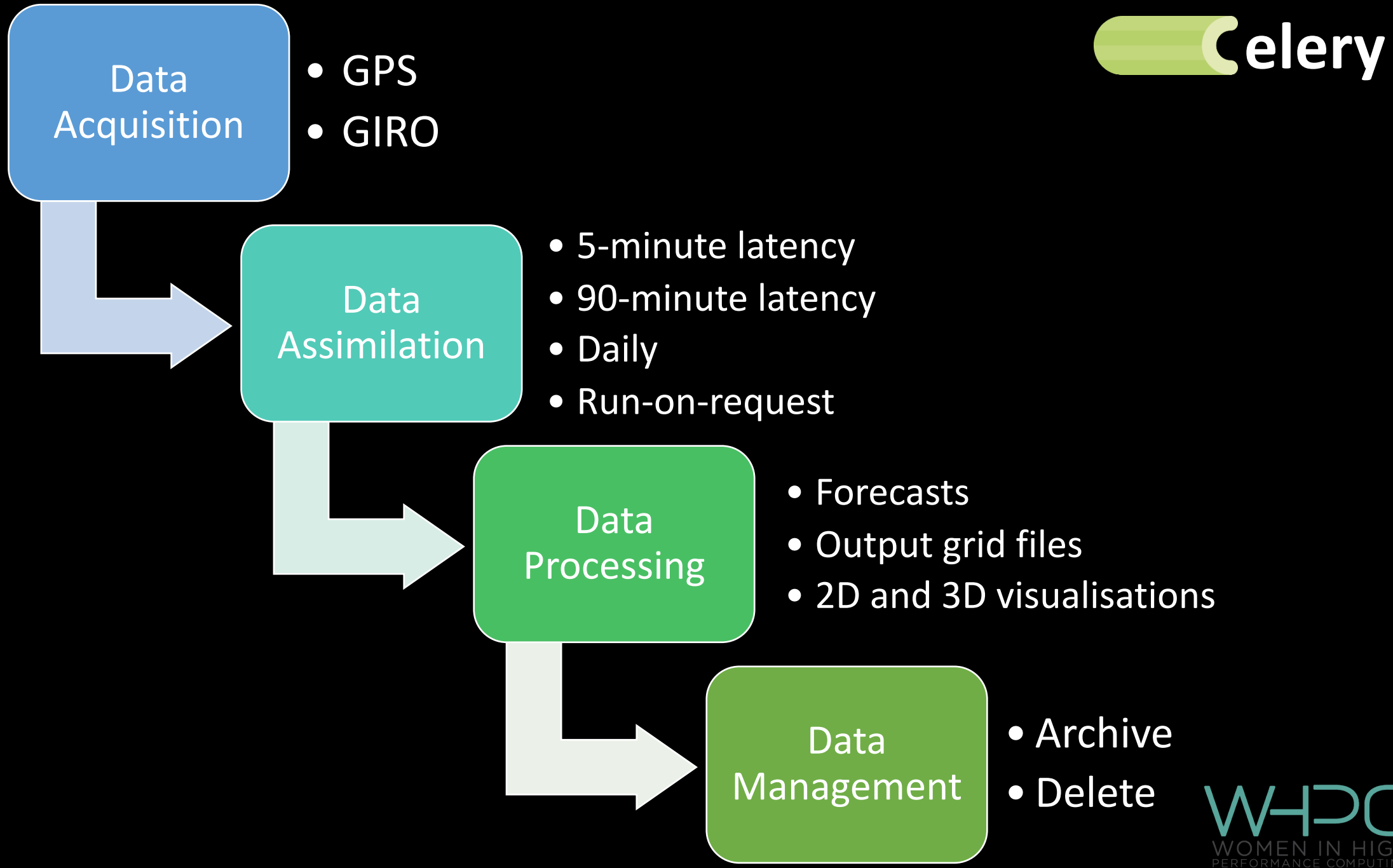
Data Acquisition
• GPS
• GIRO
Data Assimilation
• 5-minute latency
• 90-minute latency
• Daily
• Run-on-request
Data Processing
• Forecasts
• Output grid files
• 2D and 3D visualisations
Data Management
• Archive
• Delete
celery
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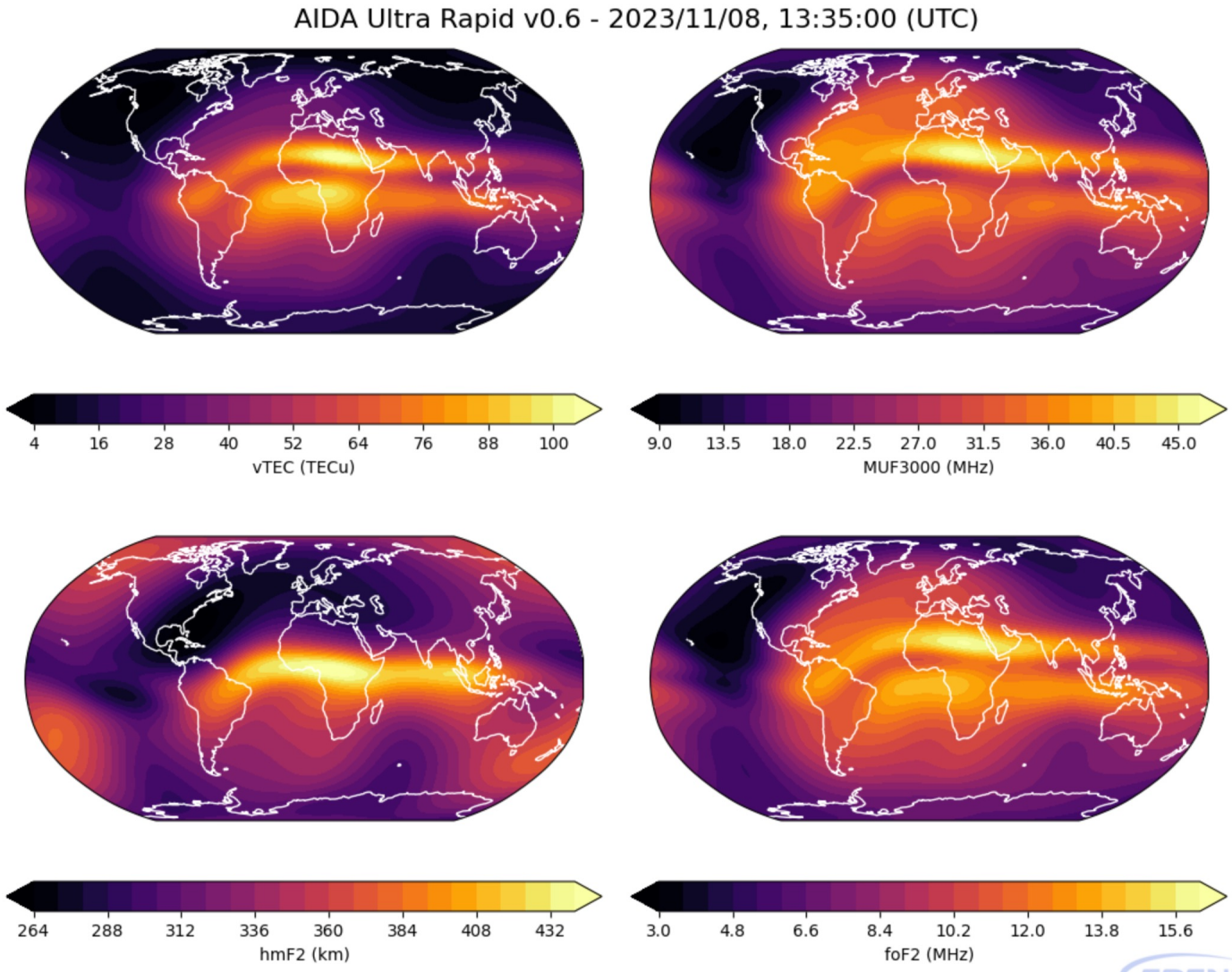
[IT-005NP] AIDA All Assimilation Outputs

ULTRA-RAPID RAPID

< prev Real-Time



Select Assimilation Time (UTC)

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Date	2D Parameter File	Image File
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2023-11-08 13:25	Download	Download
2023-11-08 13:20	Download	Download
2023-11-08 13:15	Download	Download
2023-11-08 13:10	Download	Download
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2023-11-08 13:00	Download	Download
2023-11-08 12:55	Download	Download
2023-11-08 12:50	Download	Download
2023-11-08 12:45	Download	Download
2023-11-08 12:40	Download	Download
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[IT-002NP] AIDA Ne Assimilation Outputs

ULTRA-RAPID RAPID

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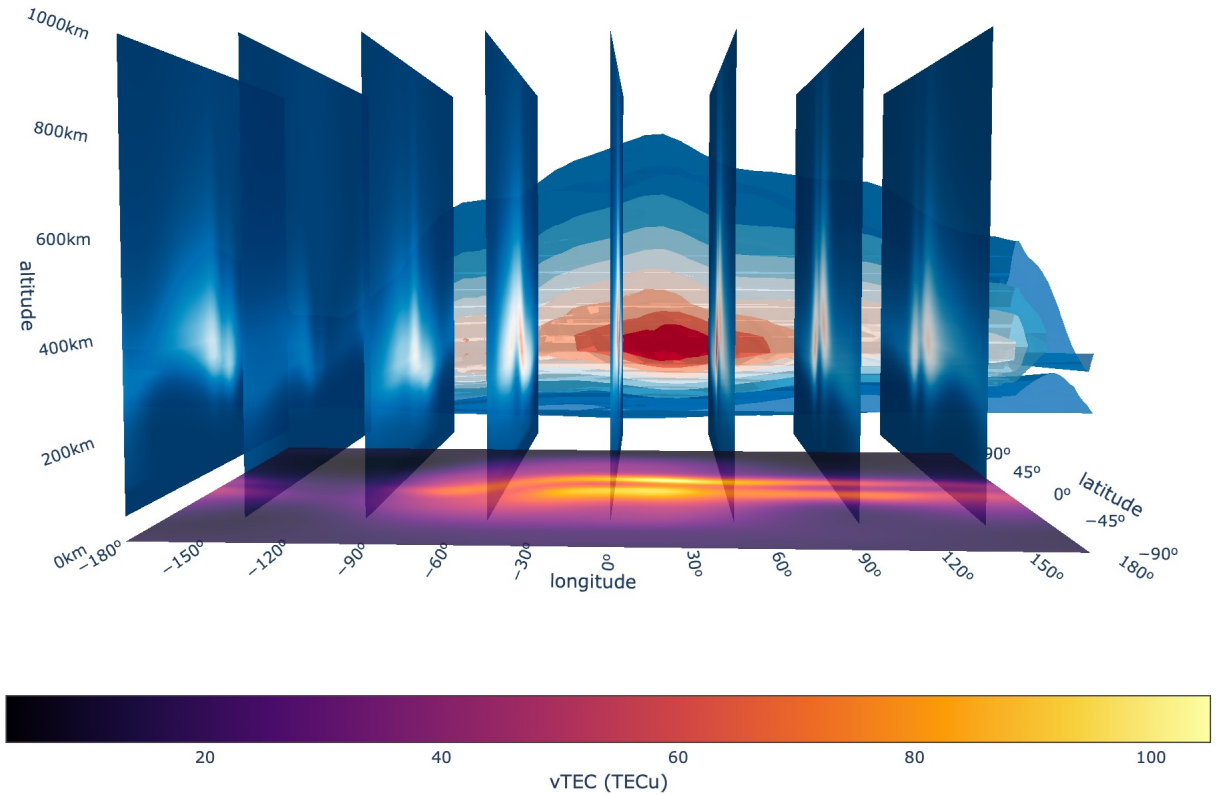
Select Assimilation Time (UTC)

AIDA Ultra Rapid v0.6 - 08/11/2023, 13:35:00 (UTC)



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16th Annual WHPC@SC Workshop

Space weather forecasting using Celery and Django: Making automated, HPC-powered scientific results accessible in near-real time.

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