

CEDAR SmallSat Session

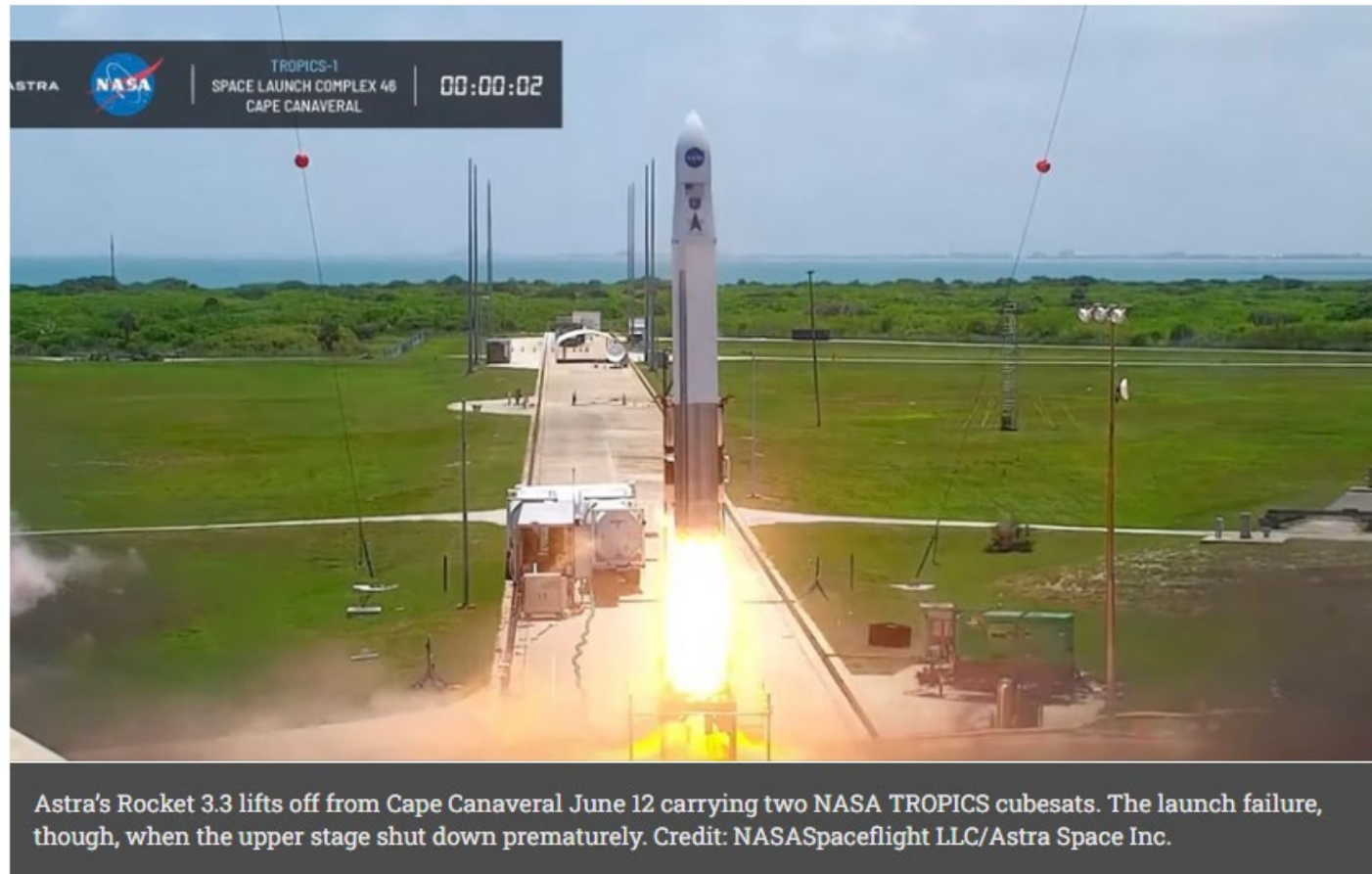
Candidate Topics

- "What are the challenges with getting data into the same formats as data repositories?"
- "What format should the data be in for a given SmallSat instrument?"
- "How could different missions communicate better?"
- "Are there recommendations for data archiving and finding paths to get that data reprocessed in the future?"
- "How can we create a relevant resource for those who are interested in using SmallSat data but are SmallSat novices?"

Space launch is risky ...

Astra launch of NASA TROPICS cubesats fails

by Jeff Foust — June 12, 2022

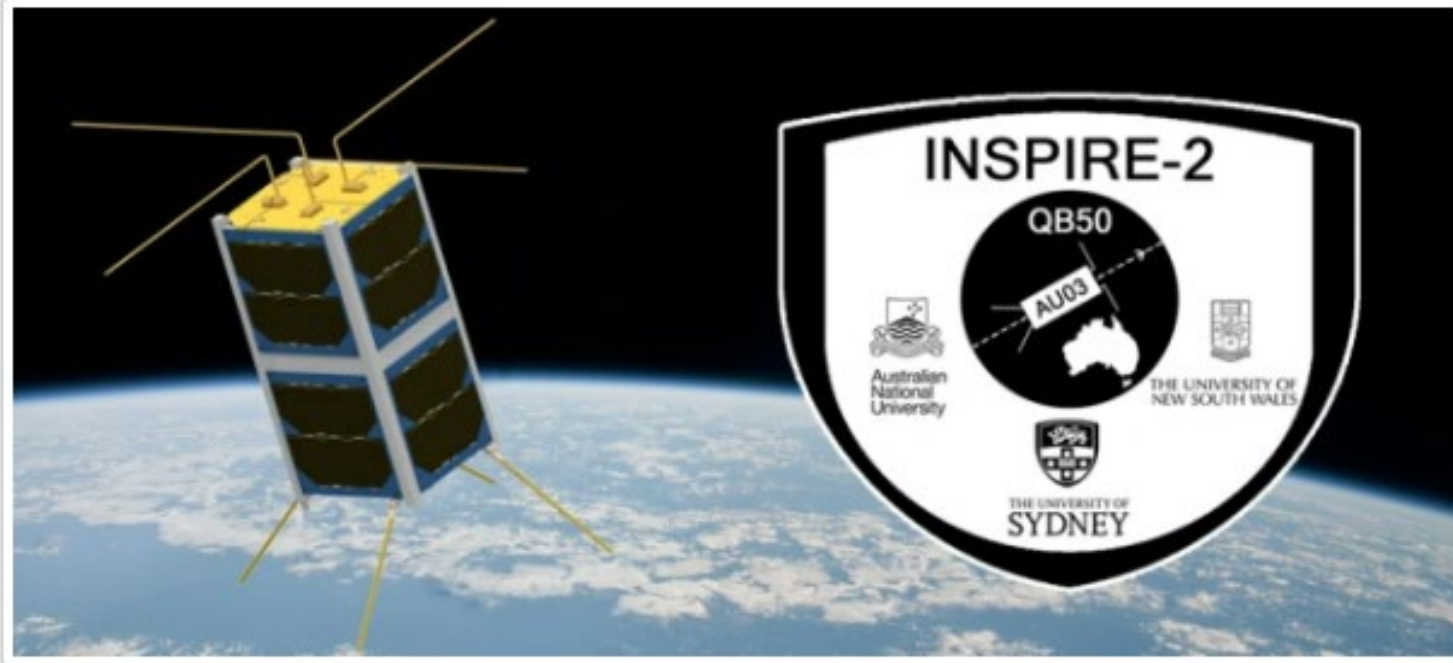


<https://spacenews.com/astra-launch-of-nasa-tropics-cubesats-fails/>

Deployment is tricky ...

JUN
17
2017

Amateur radio to the rescue of satellite



I-Inspire-2 is a 20 x 10 x 10cm CubeSat built by the University of Sydney in collaboration with the Australian National University and the University of New South Wales (Sydney)

<https://amsat-uk.org/2017/06/17/amateur-radio-to-the-rescue-of-satellite/>

Building a spacecraft is challenging ...



<https://aerospace.org/article/slingshot-platform-fast-tracks-space-systems-using-modularity-and-open-standards>

Some Current and Upcoming Ionosphere/Thermosphere SmallSat and Hosted Payloads

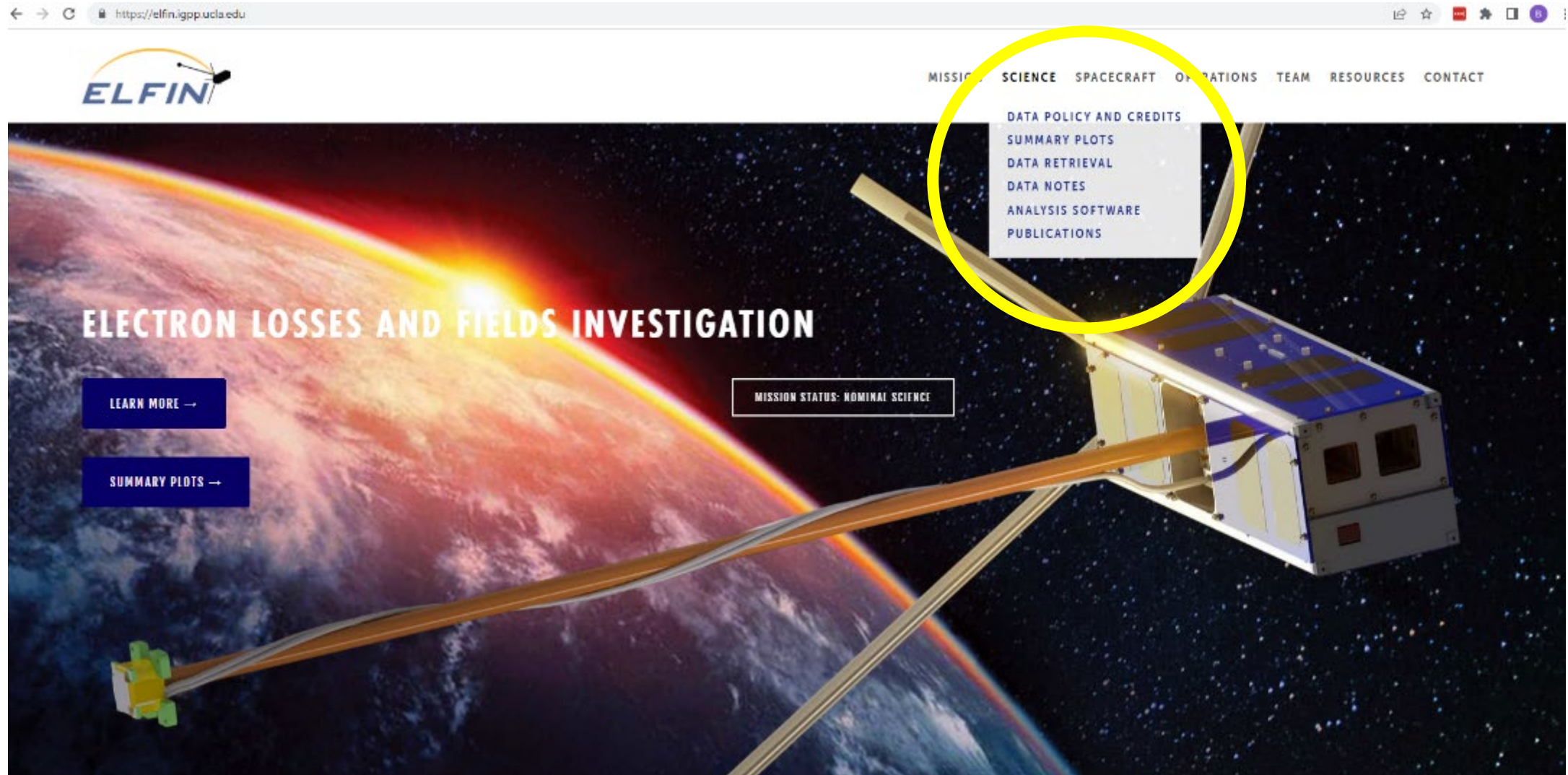
Mission	On-orbit Estimate	Mission Purpose
AERO	>=2022	Nature and source of auroral radio emissions
CIRCE	2022-TBD	2 s/c measure ionosphere and particle radiation
DALI	2022	Measure dayglow to determine composition
LAICE	TBD	Atmospheric gravity waves
petitSat	2022 - 2023	Link between MSTIDs and plasma density enhancements
LLITED	2022-2023	ETWA and EIA coupling
SPORT	2022-2023	Conditions leading to low-latitude scintillation
SWARM-EX	2023 – 2024	ETWA and EIA coupling
GPX-2	2022-2023	Upward TEC data
AERO	>=2022	Nature and source of auroral radio emissions
APEX	>=2022	Understand the influence of the magnetosphere on upper atmosphere through energetic particle precipitation
CANVAS	>=2022	VLF wave energy from lightning and ground-based transmitters
Dione	>=2022	Responses of IT to magnetosphere energy
3U ³	>=2022	Measures precipitating electrons and UV emissions in auroral Cusp regions

What about prior CEDAR-related missions?



What lessons can a new PI learn?

Example of data sharing



<https://elfin.igpp.ucla.edu/>

Challenges in Communication

- Data science is a field in itself
 - Understanding data is not trivial, risk in misinterpretation
 - Time consuming (\$\$\$)
- Can't be afraid to (talk about) our failures!
 - Always a lesson to be learned