COMMERCIAL SECTOR INVOLVEMENT IN PROSWIFT ACTIVITIES

JENN GANNON

VP OF R&D, COMPUTATIONAL PHYSICS INC.

CHAIR, ACSWA EXECUTIVE COMMITTEE

AMERICAN COMMERCIAL SPACE WEATHER ASSOCIATION (ACSWA.US)

The American Commercial Space Weather Association (ACSWA) aims to support a vibrant coalition of private sector organizations engaged in developing and deploying instruments, models, and data streams to understand, predict, and mitigate the hazards to national infrastructure caused by space weather.

Working closely with partners in academia and federal agencies, ACSWA is a critical element in the assessment, planning, advocacy, and implementation of that national resources needed for space weather preparedness.

- Estimated annual revenue across ACSWA: $50–$100 M
- Estimated labor force across ACSWA: 500 FTEs
- All major space weather domains from the Sun and heliosphere to the surface of Earth

WE ARE SCIENTISTS, TECHNOLOGISTS, AND DATA PROVIDERS

PARTICIPATION IN NATIONAL COMMITTEES

ACSWA members

Space Weather Advisory Group

SWAG Commercial Sector Representatives

Jennifer Gannon
Computational Physics, Inc.

Conrad Lautenbacher
GeoOptics, Inc.

Seth Jonas
Lockheed Martin

Kent Tobiska
Space Environment Technologies

Nicole Duncan
Ball Aerospace

National Academies Roundtable

Committee

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THE COMMERCIAL SECTOR LOOKS FORWARD TO PARTICIPATION IN TESTBED ACTIVITIES

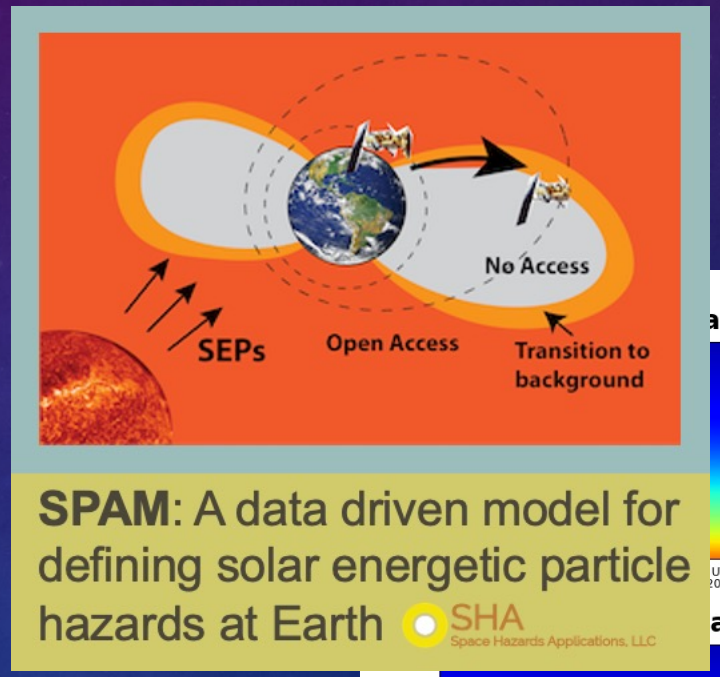
Space Hazard Applications:

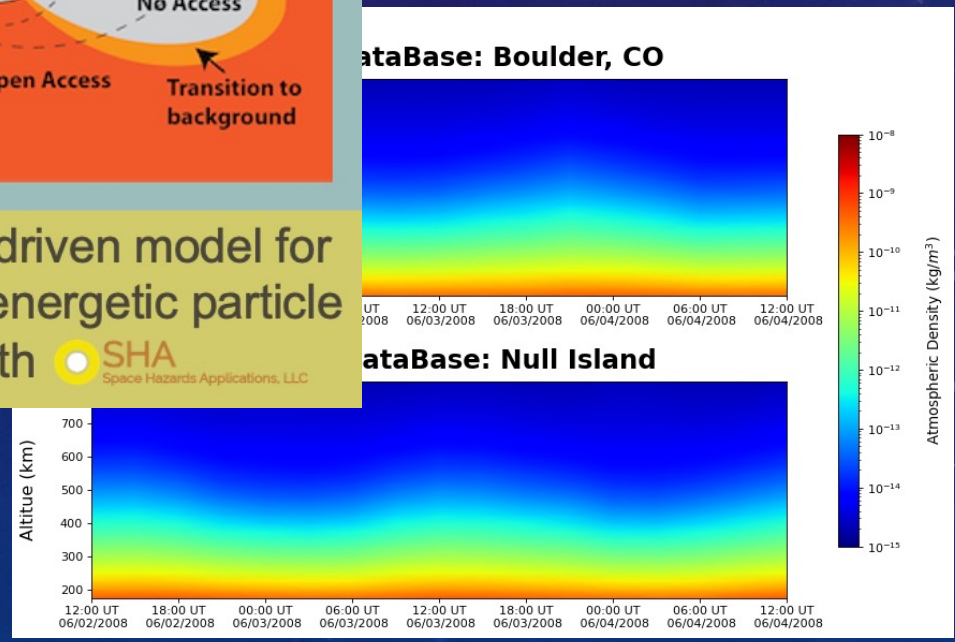
- **SatCAT/SPAM** (Satellite Charging)

Space Envinronment Technologies:

- **SET-HASDM Database** (Satellite Drag)
- **Automated Radiation Measurements for Aerospace Safety (ARMAS)** (Aviation)

Orion Space Solutions





NEAR-SURFACE OBSERVATIONS UNDER PROSWIFT

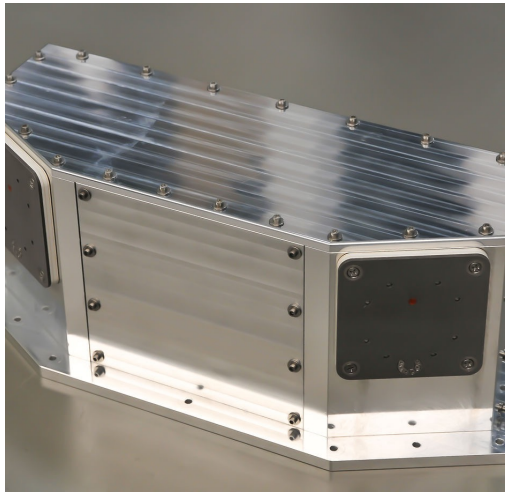
The PROSWIFT Act states that“… ground-based observations provide crucial data necessary to understand, forecast, and prepare for space weather phenomena”…

… which it defines as ”radars, lidars, magnetometers, neutron monitors, radio receivers, aurora and airglow imagers, spectrometers, interferometers, and solar observatories.”

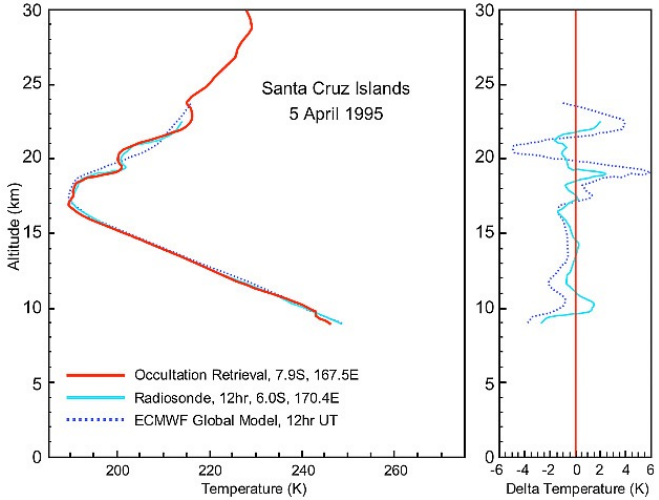
The commercial sector has a long history as data providers for many of these types of data.

COMMERCIAL SECTOR AS DATA PROVIDERS

GNSS Space Weather Monitor (Orion Space)



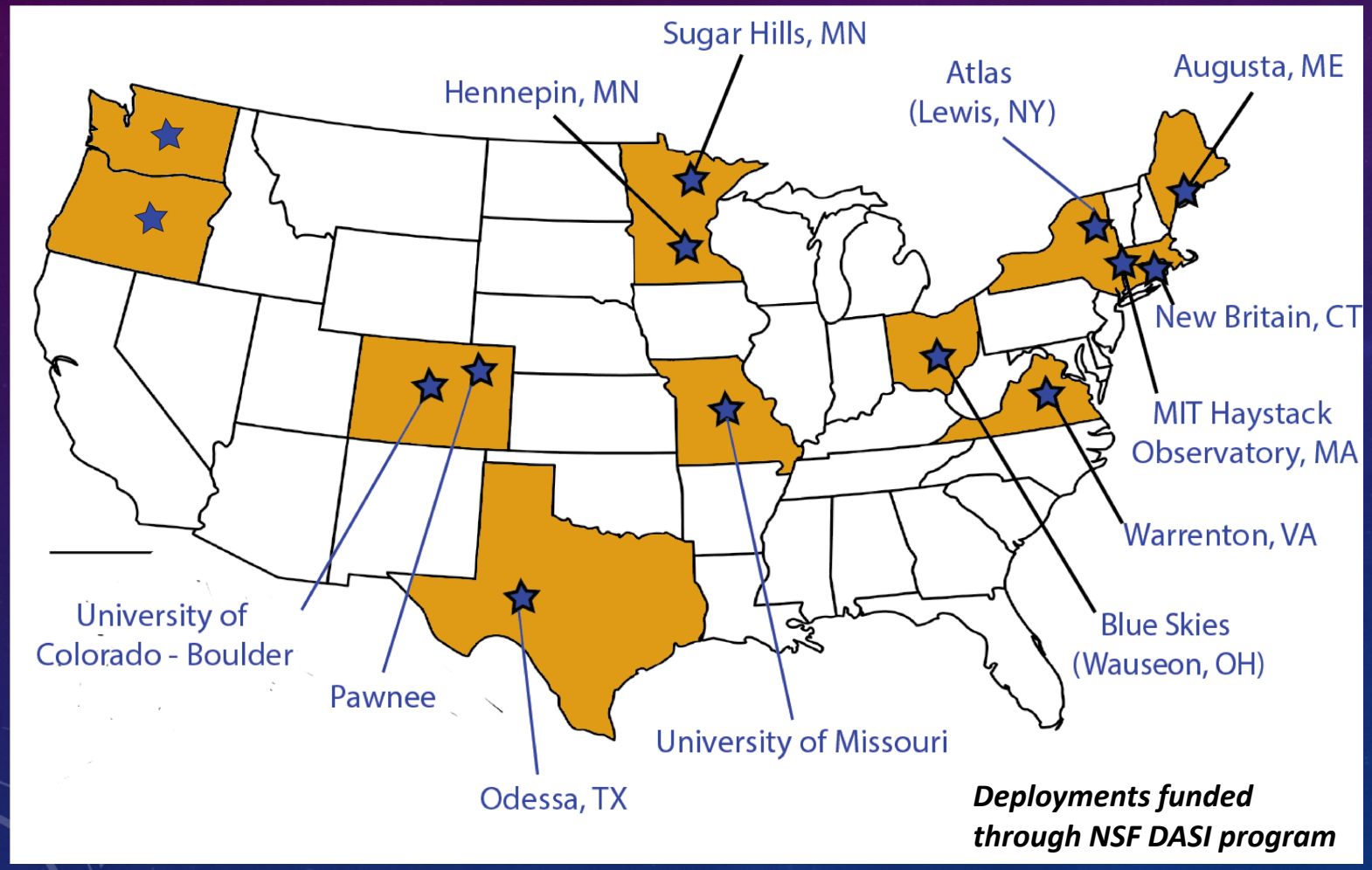
CubeSat Ocean Observing (CO2) Sensor (Orion Space)



GNSS-RO (GeoOptics)

Optical Instrumentation and Interferometers (CPI)

MAGSTAR OPERATIONAL MAGNETOMETER ARRAY



Magnetic field measurements support energy sector preparedness planning.

Operational networks require:

- Reliable data delivery
- Low latency (<0.5 sec)
- Data quality must support operational products
- Continuous data monitoring

ENSURING THAT DATA IS OPERATIONAL QUALITY: NOAA-CPI CRADA

"Through a co-operative effort between CPI and NOAA SWPC, the magnetic field data from MagStar can be more broadly leveraged to the benefit of all stakeholders, including NOAA and other federal science and hazard product providers, the US power industry, the broader research community, and CPI."

CPI provided:

- Access to MagStar real-time magnetic field data streams;
- Advancement of transmission protocols to meet NOAA-SWPC needs for data ingress;
- Improvement of magnetic field data quality, as needed and possible, to meet NOAA-SWPC data quality specifications.

NOAA-SWPC provided:

- An evaluation of magnetic field measurement quality;
- Specification of magnetic field data quality requirements for NOAA SWPC space weather products;
- Feedback on existing data ingress protocols and a specification of desired data access methods.

Results:

Mean abs error reduction of [74.9%, 32.8%, 55.9%, 69.7%], in 4 separate tests.

(courtesy of Chris Balch and Jordan Aguillera - NOAA SWPC)

THE COMMERCIAL SECTOR LOOKS FORWARD TO CONTINUING TO SUPPORT PROSWIFT ACTIVITIES.

THANK YOU!