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Products

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Our Solutions

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Our Expertise

- Space Weather Modeling
- CubeSats
- Specialized Sensors for Space
- GPS/GNSS
- HF Communications
- Analysis of Alternatives / OSSEs
- Geolocation
- Ionospheric Physics
- Imaging of TIDs
- Satellite Aerodynamics
- Orbital Drag Prediction
- Rarefied Gas Dynamics
- Gas Surface Interactions
- Satellite re-entry and DSMC
- Retrieving Atmospheric Densities
- Atmospheric Dynamics
- Airglow models

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Contract Vehicles

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Products

ASTRA™ products include scientific quality instruments that are designed to be robust in remote ground-based and space-based applications.

GPS Receivers for Space Weather Monitoring

CASES SM-211 GPS receiver



ASTRA™ CASES SM-211 GPS receiver represents a revolutionary advance in dual frequency GPS-based space-weather monitoring. Performance comparisons show the stability and robustness of ASTRA's GPS tracking algorithms. Compared to competitive units, the CASES GPS Space Weather Monitor is the most reliable receiver available for maintaining data acquisition when it matters most – tracking through intense scintillation.

- Availability of both precise GPS Total Electron Content and scintillation
- Tracks through severe scintillations
- Reliable operation in weak-signal environments
- Flexible communication interfaces
- Remote programming/reconfigurability
- Low unit cost makes it feasible to deploy an array of receivers for more complete data acquisition
- Available with or without WiFi
- Onboard computer reduces infrastructure costs and complexity
- Many data recording solutions

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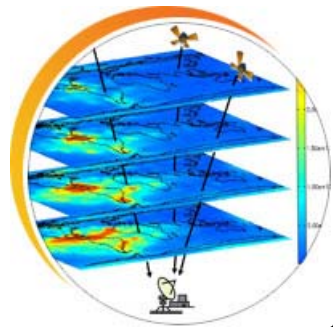
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GAMMA

GPS Autonomous Micro-Monitor



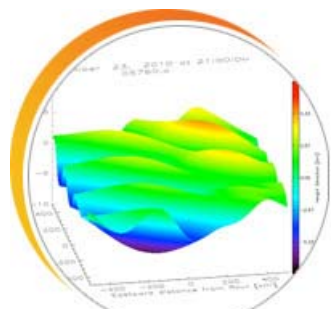
ASTRA's next generation GPS monitoring instrument combines all the world-class features of our **CASES SM-211** units with exciting new functionality including the ability to reliably operate in oceanic environments where wave motion historically hindered accurate data acquisition.

- Very low size, weight, and power requirements
- Fully-processed, highly accurate GPS Total Electron Content and scintillation data
- Reliable operation and data acquisition in oceanic, desert or other remote regions
- Autonomously communicates data to customer at required cadence
- Fully-processed, highly accurate GPS Total Electron Content and scintillation data
- Near real-time data over low-data-rate satellite link

[GAMMA datasheet »](#)

[Contact us for a customized GPS solution »](#)

Traveling Ionospheric Disturbance (TID) Mapping System



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- Complete TID information (speed, azimuth, wavelength, and amplitude as a function of period)
- Realtime operation and visualization of data
- Available 3-D visualization software to display TID motion

[Contact us for system design and visualization quotation »](#)

CUBESAT Instrumentation

Attitude Control for CubeSats

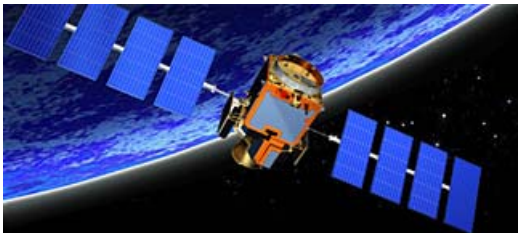


ADCS Board – developed from our experience with the DICE and DIME CubeSat missions, this 2-axis spin-stabilized control provides an affordable yet robust solution for meeting CubeSat pointing requirements.

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[Versatile Compact Avionics Board datasheet »](#)

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Customized Solutions. Built to your Specifications.

ASTRA provides custom services and solutions for our Government, DoD, NASA, University and Commercial customers. Our expertise is based upon a broad foundation of systems design, project management, fundamental space physics research, technology development, and other world-class engineering capabilities.

[OUR SOLUTIONS CAN HELP »](#)

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Products & Services

Software, hardware, and data solutions to help mitigate disruptive Space Weather impacts on GPS, Communications, Power Grid and Pipelines.

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Tech Development

ASTRA leverages our scientific expertise to engineer unique solutions in HF radar and radio, CubeSats, GPS systems, satellite remote sensing, and Lidar.

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Research

The foundation of ASTRA is our fundamental knowledge of the physics of the upper atmosphere, thermosphere and ionosphere.

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