

The utilization of next generation small satellite platforms for space weather and atmospheric research missions.

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“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.” Albert Einstein

Abstract

This paper defines key characteristics of next generation small satellite platforms, describes new satellite products for small space weather missions, and outlines how next generation smaller satellites can be utilized for space weather applications.

► Key Characteristics of Next Generation Small Satellite Platforms

• Affordability

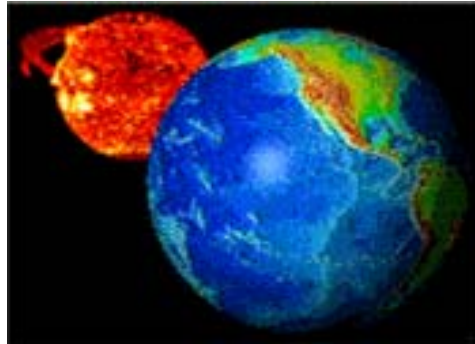
One third the cost: Embracing product life cycle best practices (QC, life cycle costs, and estimates), the implementation of more efficiency in overhead, design, production, and technical resources – Doing more with less!

• Reliability

Reduce complexity: A “keep it simple” philosophy - Lowers development and technological risk.

• Performance

Robust subsystems architecture: Emphasizing technologies that extended on-orbit mission life expectancy and enable higher fidelity data collection.



Courtesy: SEC & NOAA

► New Satellite Products for Small Space Weather Missions

● EXPRESSBUS™ - THE NEXT GENERATION OF SMALLER SATELLITES.¹

Our flagship product **ExpressBus™**, is a development-stage micro satellite class platform that offers customers greater flexibility in mission design, increased mission opportunities, and a lower cost access to space in a cost-effective and high performance platform designed specifically for academic and research missions.

● SCIENCEBUS™ – MEETING THE FUTURE NEED FOR MORE ROBUST SCIENCE AND EXPLORATION MISSIONS.¹

ScienceBus™ is a minisatellite platform designed to substantially improve the science return to mission investment ratio by a factor of three. The result is a higher performance product that yields a far greater value and higher reliability in sharp contrast to similar products offered today in the space marketplace.

► Utilization of Next Generation Small Satellites for Space Weather Applications

- Forecasting capabilities
- Science and Operational data sources
- Targeted Research
- Micro and mini class satellites offer significant potential for space weather observations.²

Conclusion

Space Weather programs will require, today and in the future, the utilization of next generation small satellites to provide, on a more frequent and continuing basis, affordable, reliable, and high performance space platforms that consistently deliver higher fidelity and timely space weather data products to science and operational space-customers.

About Instarsat

Instarsat, LLC is a privately held high technology company that specializes in the development and manufacture of reliable, cost-effective and high performance satellites for academic, science, civil space, military, and commercial markets.

References

¹ [www.instarsat.com/Products and Missions](http://www.instarsat.com/Products%20and%20Missions)

² NSWP Assessment Report, June 2006, Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), Pg. 50