

AFRL RESEARCH TOPIC CALL 2012

1. **Research Title:** "Multi-Domain Analysis of Global Navigational Satellite System (GNSS) Signals"
2. **Individual Sponsor:**
Eric Vinande, AFRL/RYMN
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WPAFB, OH 45433-7333
3. **Academic Area/Field and Education Level:** Electrical Engineering, Computer Science, Mathematics, Physics (MS level)
4. **Objectives:** Precision navigation technologies are central to advanced distributed sensing. As the DoD becomes increasingly dependent on precision navigation solutions provided by GPS for a wide range of military and commercial applications, there is a greater demand on assured continuity, integrity, and availability of global positioning, navigation, and timing solutions. With the recent advances in GPS modernization, the increasing number of the Russian GLONASS satellites and modernized signals, the emergence of the Galileo and Compass constellations, and a multitude of regional and spaced-based augmentation and remote sensing systems, multi-domain studies of GNSS signal integrity and propagation effects will provide new error estimation, correction, and forecasting capabilities to achieve improved navigation system performance.
5. **Description:** This project will utilize both ground-based GNSS receiver arrays strategically distributed worldwide and space-based remote sensing platforms to study GPS and other GNSS signal quality and propagation effects, and to support development of high accuracy, high sensitivity, and robust GNSS receiver operation through natural and manmade signal tracking challenges.
6. **Research Classification/Restrictions:** None at this time.
7. **Interest in Summer USAFA Cadet:** None at this time.
8. **Eligible Research Institutions:** *Place an X in all that apply.*
x Universities (DAGSI & AFIT) AFIT (only) USAFA

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