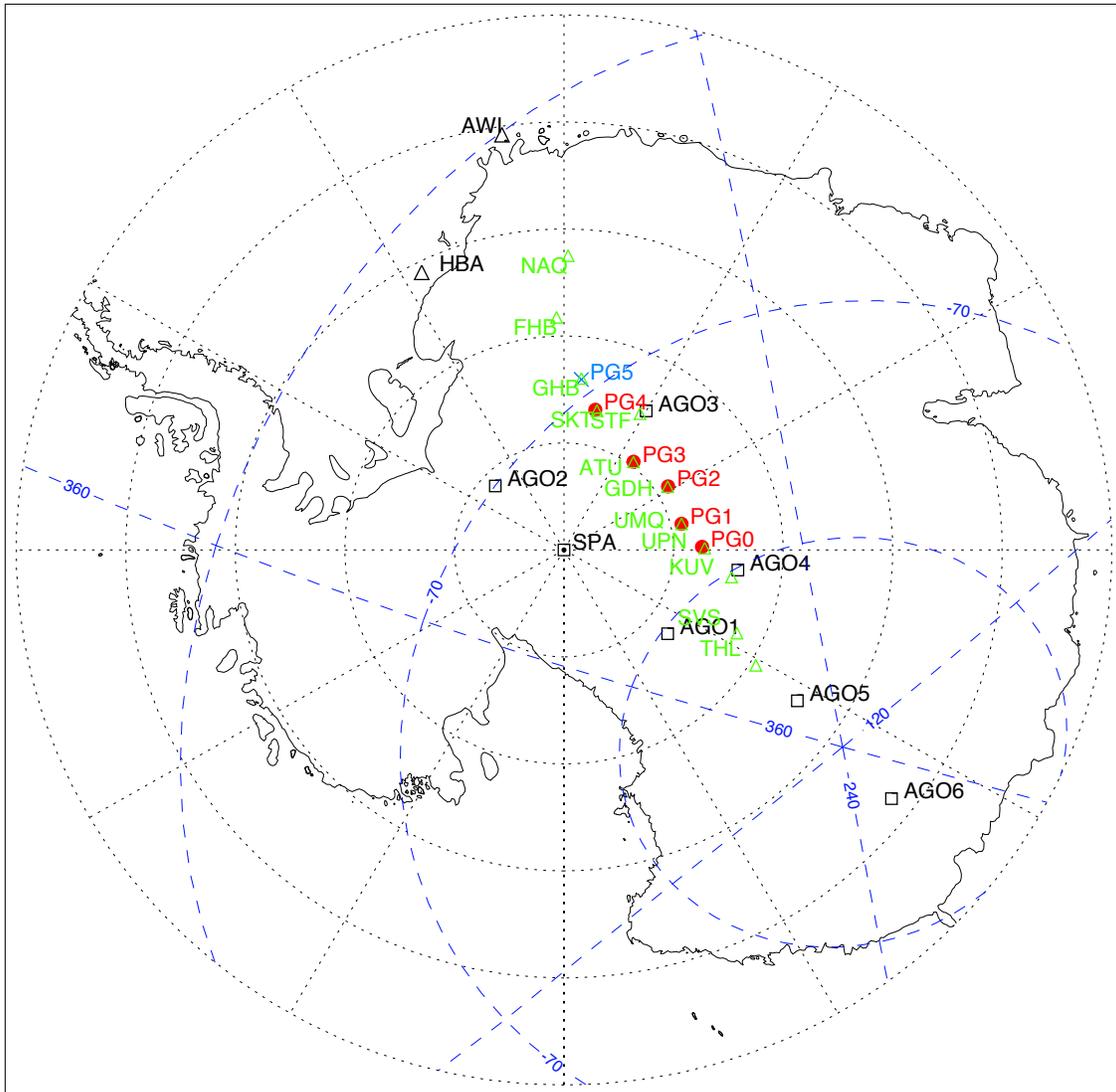


Project Report: Autonomous Adaptive Low-Power Instrument Platform (AAL-PIP) for Interhemispheric Space Weather Investigations Along the 40-degree Magnetic Meridian

January 2015

During January 2015, the Magnetosphere-Ionosphere Science Team (MIST) led by Prof. Bob Clauer at the Virginia Tech Center for Space Science and Engineering Research successfully installed the fifth remote field observation system called Autonomous Adaptive Low-Power Instrument Platform (AAL-PIP) on the East Antarctic plateau. This, with the existing four systems, forms a high latitude chain along the 40-degree magnetic meridian, conjugate to the existing magnetometer station along the west coast of Greenland operated by the Danish Technical University. The deployment of the final (6th) system in the Antarctic chain is scheduled for the next Antarctic summer field season (2015-2016), completing the array consisting of a total of six instrument platforms in Antarctica. AAL-PIPs are designed to monitor the Earth's magnetic fields using fluxgate and induction magnetometers and GPS signals for space weather research. The deployment team includes team leader Dr. Zhonghua Xu and a graduate student Peter Marquis from Virginia Tech and Bruce Fritz, a graduate student from the University of New Hampshire. The MIST members are currently analyzing data from the systems to investigate high-latitude ionospheric irregularities and the interhemispheric responses to solar wind dynamics. For further details about the project and data request, contact Bob Clauer (rclauer@vt.edu). The Antarctic map below shows the locations of the existing (red solid circles) and projected (blue X) AAL-PIP systems along with other space weather stations in Antarctica (black rectangles and triangles). Some of the Greenland magnetometer stations (green triangles) are magnetically conjugate to AAL-PIPs. The blue dashed lines indicate magnetic coordinates based on the International Geomagnetic Reference Field (IGRF) model for the year 2009.



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