Geophysical Research Abstracts
Vol. 13, EGU2011-12778-1, 2011
EGU General Assembly 2011

Iridium RUDICS Communication Optimized for Remote Autonomous Polar Network Applications

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The proliferation of satellite communications for scientific and state-of-health data retrieval from remote polar geophysical instruments has reduced data latency and the dependence on data retrieval field visits. Yet adding a communication link adds to the remote system complexity and power demand, host IT requirements, and hardware cost. We describe our development efforts to develop, test, and deploy scalable and instrument independent Iridium Router-based Unrestricted Digital Internetworking Connectivity (RUDICS) based communications for geodetic GNSS and seismic networks. Enhanced features include the ability to host standard "network appliance" devices using the Ethernet interface and TCP/IP protocol, improved bandwidth, reduced power consumption, cold hardening, and improved system control.