UNIVERSITE DES SCIENCES ET TECHNIQUES DE MASUKU (USTM)/UNAVCO/IRIS/NASA COLLABORATIVE EFFORT TO UTILIZE VSAT TECHNOLOGY FOR REMOTE DATA TRANSFER

Collaborative Agencies Include: Universite des Sciences et Techniques de Masuku - Franceville Gabon, UNAVCO, NASA, Incorporated Research Institutions for Seismology (IRIS)

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The Jet Propulsion Laboratory (JPL) and the University NAVSTAR Consortium (UNAVCO) Boulder Facility both on behalf of NASA collaborated with Incorporated Research Institutions for Seismology (IRIS) and Universite des Sciences et Techniques de Masuku (USTM) to utilize Very Small Aperture Terminal (VSAT) technology in the best interest of a multi-disciplinary science community. By integrating high accuracy GPS and meteorological sensors with seismic installations, researchers now have an opportunity to investigate geological and tectonic events using several data sets. It is our hope that the scientific value of data from collocated instruments will be greater than individual data sets in differing locations. In addition, the cost share reduces the fiscal burden of each organization without sacrificing science goals. VSAT technology is particularly suited to areas that lack commercial or private Internet but would otherwise be good candidates for providing sensor data, for reasons of geographic or geological uniqueness. For these locations VSAT is currently the only viable solution for real-time or near real-time data transfer.

Monumentation

MET Pack

Paroscientific MET3 sensor (pressure, temp, humidity) mounted above computer room. Data download to computer.

The GPS monument is excavated to bedrock and constructed of a rebar reinforced concrete pillar.

VSAT Dish

Ku-band VSAT dish from Meissa installed by IRIS. USTM/UNAVCO/JPL operates an Ashtech Z-XII3 receiver and a Paroscientific MET-3 system. The Ashtech receiver provides 1 second data which is placed in UDP packets and sent to JPL through a 9600 baud channel on the VSAT.

Latency Plot
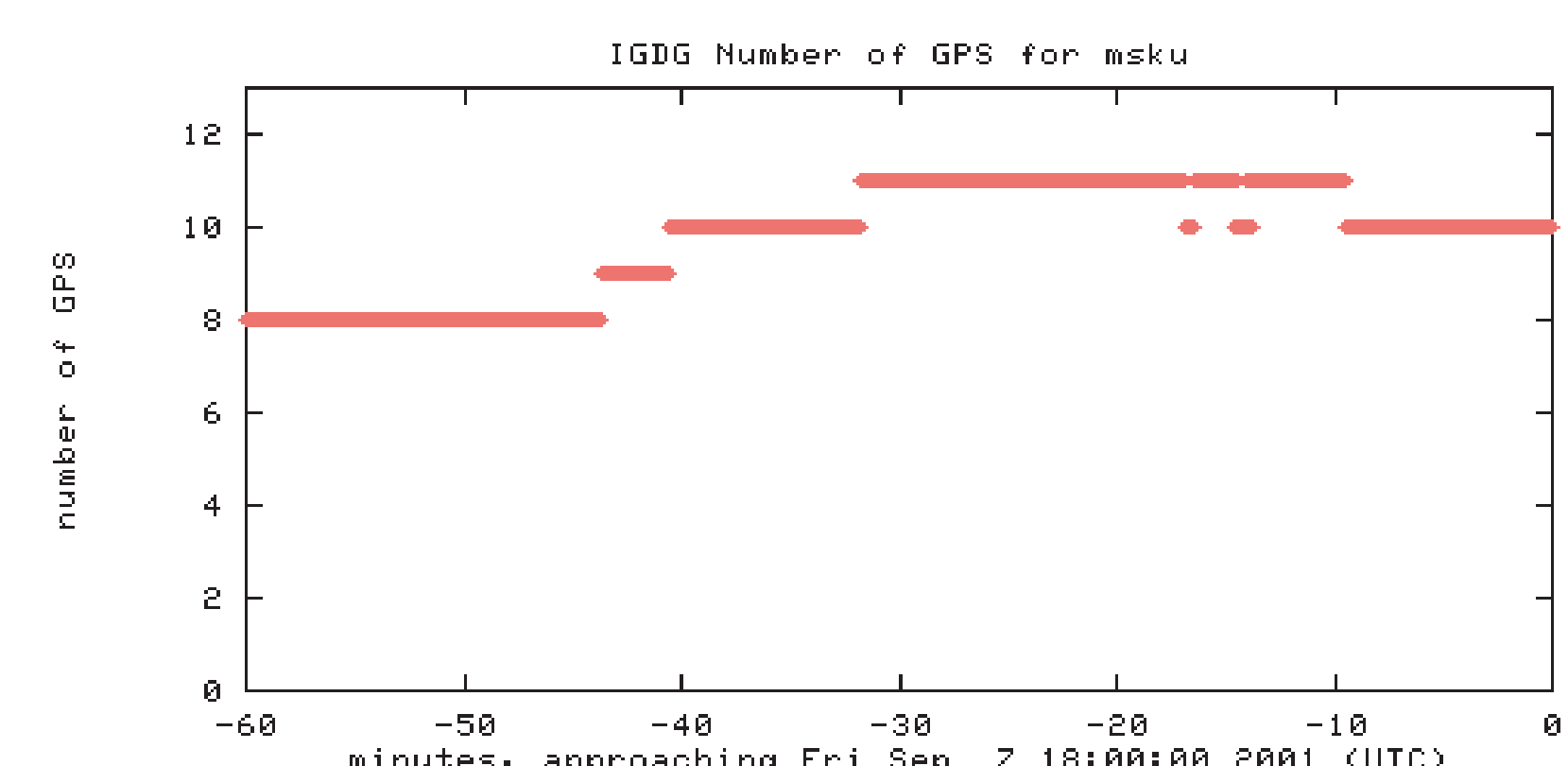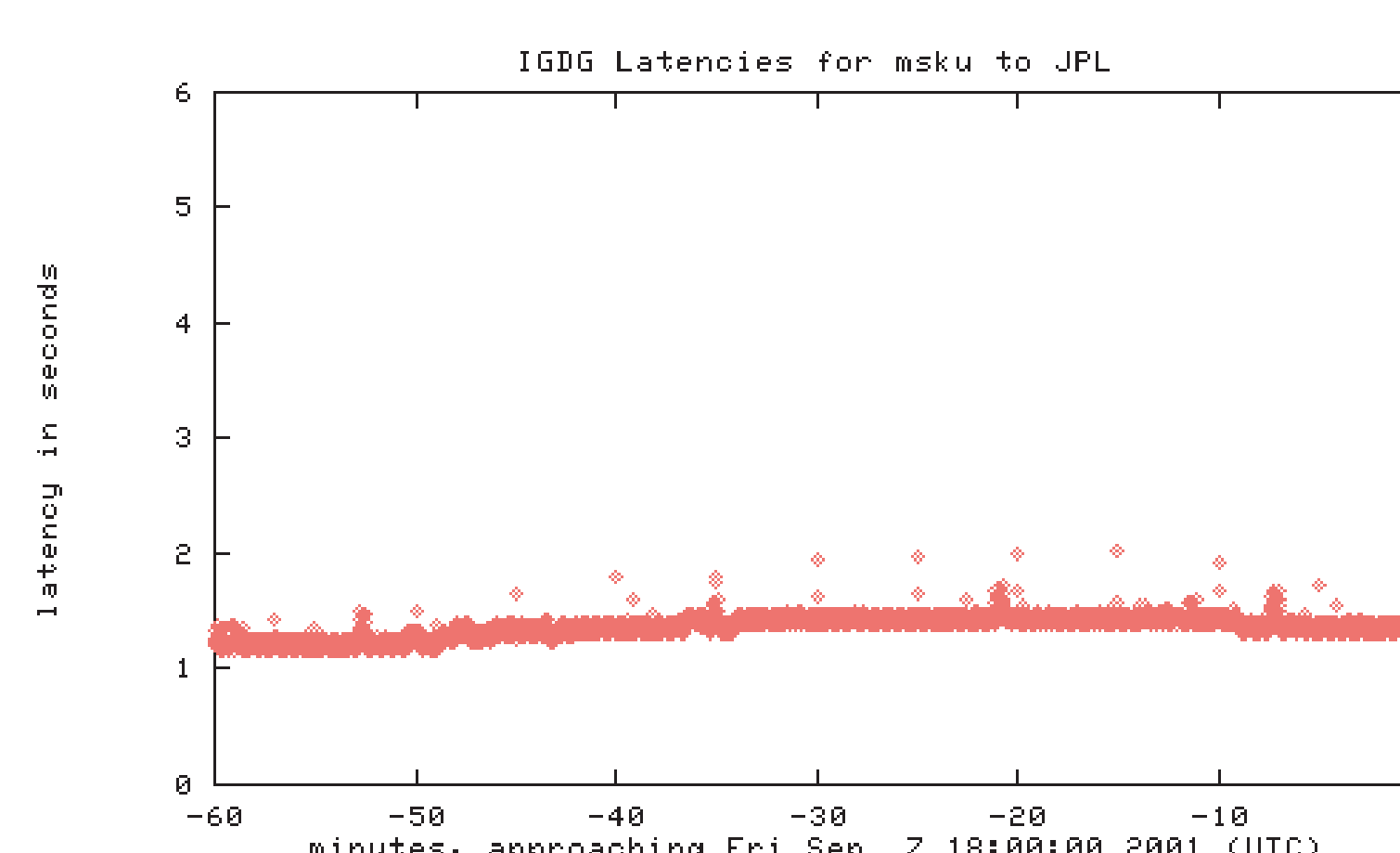
Plot on left shows latency for 1 second data received at JPL. Typical latencies are about 1-2 seconds. Spikes (increases) in latencies about every 15 minutes shows the effects of transferring the binned raw files to JPL for creation of IGS products. Plot on right shows number of satellites tracked. The plots are updated every 30 minutes.

Data is available from: http://sopac.ucsd.edu
http://cddis.nasa.gov

Great thanks and acknowledgements are due to the Universite des Sciences et Techniques de Masuku (USTM) for help in accommodating and facilitating the VSAT station and GPS installation. Personnel from USTM constructed the GPS monument and assisted in the GPS and MET-pack installation. The GPS monument is excavated to bedrock and constructed of a rebar reinforced concrete pillar. The computer is located in the computer science department of the USTM building. This installation would not have been possible without the help and cooperation of the USTM personnel.

UNAVCO
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