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7.5 NORSAR's contributions to increased participation in GSETT-3

This short contribution summarizes NORSAR's efforts over the past two years towards assisting National Data Centers (NDCs) in various countries in providing data from their stations to the GSETT-3 International Data Center (IDC) in Arlington, Virginia, USA. The services rendered are related to creating appropriate data acquisition and communications interfaces to existing seismic stations, and to establishing communications from station sites to the IDC via the Norwegian NDC located at the NORSAR premises at Kjeller, Norway.

Japan

NORSAR has cooperated with the Japan Meteorological Agency and the Japan Weather Association in the development of a data acquisition system for the Matsushiro array (MJAR), which is a primary station in GSETT-3. The system developed is a variant of the NORAC (NORSAR Array Controller) unit. It is specially designed to accommodate the data stream from the Matsushiro array and to forward the data to the Japanese National Data Center in Tokyo via a land line. This NORAC unit was installed at the array site in Japan in September of 1994. Since then, this unit has operated successfully with very few interruptions, as evidenced by the very high percentages for the availability of Matsushiro array data in the IDC archives.

During the implementation work in Japan, NORSAR representatives assisted personnel at the Japanese NDC in Tokyo in installing the AlphaRead/-Send suite of programs. These are the routines that reformat GSETT-3 primary station data and provide for continuous transmission of such data to the IDC, using in this case a dedicated line between the Japanese NDC and the IDC.

Spain

Personnel from the Norwegian NDC visited Madrid in January of 1995 and cooperated with personnel at the Spanish NDC in the implementation of the AlphaRead/-Send software and subsequent start-up of the transmission of Sonseca (ESDC) GSETT-3 primary station data to the IDC via the Norwegian NDC.

The data from the Sonseca array are transmitted from the Spanish NDC in Madrid via a satellite link (EUTELSAT) to the Norwegian NDC, and then forwarded to the IDC via the dedicated 256 Kbits/s fiber optic link between the Norwegian NDC and the IDC.

Sweden

A NORAC unit was installed by NORSAR at the GSETT-3 primary station Hagfors (HFS) in Sweden in the spring of 1994. Initially, the data from the Hagfors array were transmitted to Kjeller, Norway, via a land line, but in the fall of 1994, this line was replaced by a satellite link (Norwegian Telecom's VSAT satellite system). Data from the Hagfors array are recorded at the Norwegian NDC, where the AlphaRead/-Send software provides for the forwarding of the Hagfors array data to the IDC.

Finland and Germany

Data from the primary stations FINESS in Finland and GERESS in Germany have been transmitted to the IDC via the Norwegian NDC throughout GSETT-3. Currently, the GERESS data are transmitted from the GERESS array site to Norway utilizing a German VSAT system, whereas FINESS data are sent from the Finnish NDC in Helsinki to Norway using Norwegian Telecom's VSAT system. AlphaRead/-Send software running at the Norwegian NDC provides for the forwarding of data from these two arrays to the IDC.

Pakistan

A VSAT satellite link was established by Norwegian Telecom and NORSAR personnel in October 1995 between the Pakistan NDC in Nilore close to Islamabad and the Norwegian NDC. This link provides communications for the Nilore (NIL) GSETT-3 auxiliary station. AutoDRM software has been installed at the Pakistan NDC in Nilore, and the IDC can thus automatically access the Nilore station by routing the request through the Norwegian NDC.

Further plans

There are plans for a GSETT-3 primary station in Thala, Tunisia, as a cooperative effort between Tunisia, Italy, Sweden and Norway. If these plans come to fruition, a NORAC unit will be installed at the Thala site, and a Norwegian Telecom VSAT system will provide for the communications between Thala and the Norwegian NDC.

NORSAR is also considering assisting the Ukraine in transmitting data from the planned GSETT-3 primary station UKRSAR in the Ukraine to the IDC. This can again be accomplished through installation of a NORAC unit, and a Norwegian Telecom VSAT link between the Ukraine and the Norwegian NDC. Work is in progress to find the financial resources required for this.

Finally, NORSAR is looking into the use of Norwegian Telecom's VSAT system for transmission of data from the planned GSETT-3 primary station at Kilimanbogo in Kenya to the Norwegian NDC. This is technically feasible, but a sponsor for such an undertaking still needs to be found.

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