

Case Study: SHMU Hydromet Weather Radar

Requirement: A sophisticated dual polarity Doppler weather radar system that will provide precision rainfall data for water management and general meteorological applications.

Solution: An RDR-250GC Doppler radar with dual polarity operation, a precision offset feed antenna, and Gamic signal processing hardware and software.

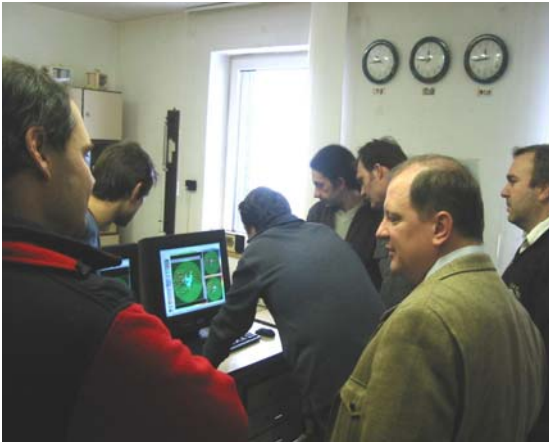
The basic purpose of this system is to provide rainfall data in defined watershed areas. The radar rainfall data will be input to hydrological modeling software for the purpose of flood forecasting/management, and the management of water levels and flow rates to support navigation and power generation. The system will also be used for general meteorological applications, i.e., forecasting, storm tracking, etc.

The RDR-250GC, in conjunction with Gamic's software, provides a full range of reflectivity, velocity and spectrum width products, including volume scan products. The use of a coaxial magnetron with an IGBT modulator and a digital receiver provides pulse accuracy and stability approaching that of a Klystron radar. This stability permits the use of dual polarity technology to improve the accuracy of radar based rainfall measurement. The dual polarity employs simultaneous transmission of the horizontally and vertically polarized components, with dual receivers- one for horizontal and one for vertical reception. In addition, the radar may be electronically switched to full horizontal operation for conventional weather radar operation.

The system also includes a precision offset feed antenna. This antenna has exceptional side lobe performance, with first side lobe suppression on the order of -35 dB with respect to primary lobe. This superior side lobe suppression improves the accuracy of the dual polarity data. In addition, the superior side lobe suppression significantly improves the radar's ground clutter rejection.



◀ **SHMU
weather
radar site
near Kosice,
Slovakia**



Above: Radar console displaying live image

Right: RDR-250GC Transmitter/Receiver Cabinet with Gamic Enigma signal processor (including dual polarity option)

Lower Right: Dual polarity waveguide feeds on offset feed antenna.

Below: Antenna azimuth drive showing slip rings and dual polarity waveguide feed.





RDR250-GC Radar System


SAT: Test and Acceptance

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SHMU Approval:

The SITE acceptance at SHMU radar site has been approved by the customer SHMU. The list post SAT action is specified in a side letter agreement.

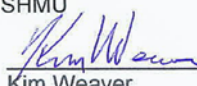
Kojsovska Hola, 20.01.2005



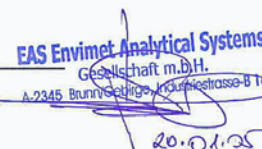
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