# 8.17 THE GAMIC WAVE SENSING RADAR AND THE GD-APS FUTUREWAVES WAVE AND VESSEL MOTION FORECASTING SYSTEM

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The GAMIC Wave Sensing RADAR (GWSR) is a new sensor designed to measure the characteristics of oceanic waves. It is used in the "FutureWaves″ wave and vessel motion forecasting system developed by GD-APS.

The RADAR system is technically derived from the GMWR-25-SP weather radar. It uses a 25 kW X-Band magnetron and a slot antenna rotating at up to 24 rpm. In order to provide a high spatial resolution of 7.5 m, a pulse length of 50 ns is utilized. At the same time a new GAMIC intermediate frequency digitizer (IFD), with a 500 MHz sampling rate, in combination with a proven STALO from the GMWR range of weather radars, ensures a high Doppler resolution. The signal processor is based on the technology and on the algorithmic experience that makes up the ENIGMA IV Signal Processor.

The GD-APS FutureWaves$^{TM}$ system leverages the capabilities of the GWSR in order to get high quality data as an input to a phase-resolved oceanic wave forecasting model. The output of this wave model drives a real-time vessel-motion model to provide precise timing and magnitude of vessel motions for minutes before they actually occur.

The poster will present the two systems in detail and an overview of the scientific principles employed. We will also provide a short synopsis of possible applications of the system.