

RVP7 V06 Release Notes

These notes cover changes made to the RVP7 code since release V05 of 28 January 1998. If you are upgrading from an earlier release, please read those notes also.

This is a beta test release, and the new features will not be fully supported until V07.

New Features

1. This is the first version of RVP7 code that supports dual-polarization algorithms. Differential Reflectivity (ZDR) and Specific Differential Phase (KDP) are now available in either 8-bit or 16-bit parameter format. Time series are also available in alternating polarization modes.
2. The GPARM latched status word Bit 15 (Configuration Error) is now also set whenever KDP, ZDR, or alternating polarization are requested while not in PPP mode, or if an odd sample size is requested during alternating polarization in PPP mode.
3. The GPARM latched status word Bit #5 will now be set whenever a FIFO overflow is detected by any of the slave DSPs. This condition will arise if the RVP7 has been configured to do more work than the available time permits. ASCOPE will flag this error, but the RVP7 will not necessarily recover properly from it. Processing configurations that produce this error will not run reliably, and the CPU load should be reduced in some way, e.g., by decreasing the number of bins, decreasing the PRF, adding an RVP7/AUX board, using "R1" rather than "R2" algorithms, etc.

Setup Changes

1. Two new setup questions have been added in the "Mt" section to define the polarity of the POLAR0 and POLAR1 control lines. In a dual-polarization radar POLAR0 should be used to select one of two possible states (nominally horizontal and vertical, but any other polarization pair may also be used). The control signal will either remain at a fixed level, or will alternate from pulse to pulse with a selectable transition point. POLAR1 is identical to POLAR0, but may be configured with a different polarity and switch point. This second signal could be used if the radar's polarization switch required more than one control line transition when changing states.
2. Two new setup questions have been added in each of the "Mt<n>" sections to define the switch point of the POLAR0 and POLAR1 control lines for each pulsewidth. During data processing modes in which the polarization alternates from pulse to pulse, the transition points of these control signals are set by these two questions. The values are in microseconds relative to range zero; the same units used to define the start times of the six user triggers.
3. There is a new setup question in the "Mp" section to select the length scale for the computation of Specific Differential Reflectivity (KDP). This is the range in kilometers over which the Differential Phase Φ_{dp} is examined to produce each KDP estimate. That same question also allows substitution of Φ_{dp} in the normal KDP output slot.

4. There is a new setup question in the "Mp" section to control whether Differential Phase (Φ_{dp}) is computed from filtered or unfiltered time series, and to swap its sign. Φ_{dp} should generally increase with range when the radar pulse is travelling through meteorological scatterers.
5. There is a new setup question in the "Mp" section to control whether Differential Reflectivity (ZDR) is computed from filtered or unfiltered time series.