EDGES MEMO #276

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Subject: Midband results from 2017_329 to 2018_043

A midband system was deployed at the MRO in November 2017. Unfortunately the strength of the noise source used in the 3-position switching did not provide adequate rejection of the ripples in the 50 m cable to the hut so that these ripples along with a higher noise level are present in the data.

Figure 1 shows the residual spectra with 5 physical terms removed and Figure 2 shows the results of a signature search with 5 physical terms plus a signature with $\tau = 7$. Despite the added noise and ripple the best fit signature is close to those obtained in the low band.

Added note: 1 May 2018

When the receiver was returned to ASU it was discovered that the voltage regulator which provides +12 V in the receiver had inadequate voltage margin to maintain 12 V when the input voltage drops to +16 V when in the antenna position of the switch cycle. The part number should have been LM340T-12 from Texas instruments which has a specific voltage margin of 2 volt so that it should maintain 12 V output for output voltage of more than 14 V. The incorrect voltage regulator was the major cause of the failure of the 3-position switch to cancel out the ripple in the long cable from receiver to the hut.

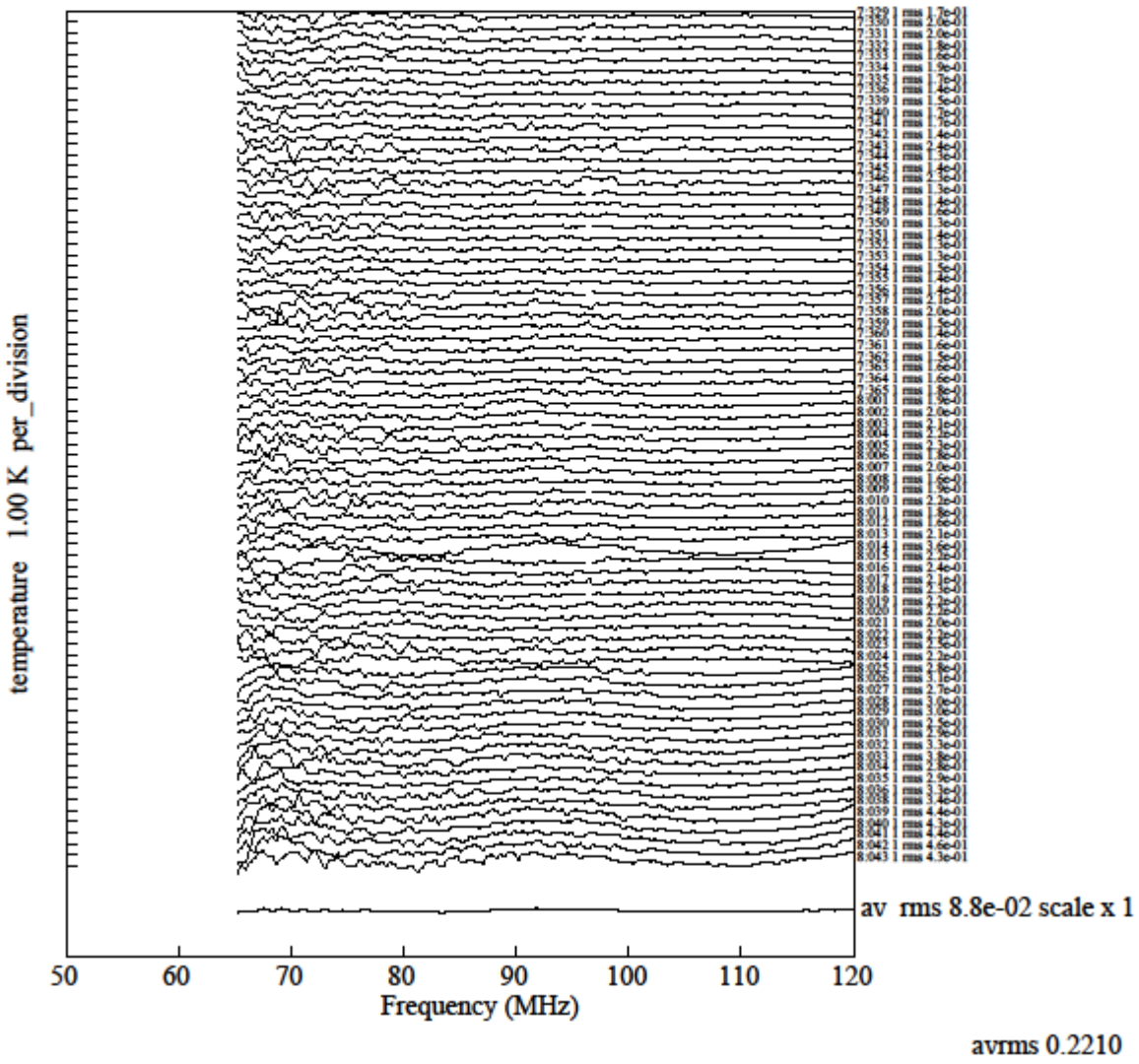

Figure 1. Midband data residuals from 2017_329 to 2018_043 with 5 physical terms removed.

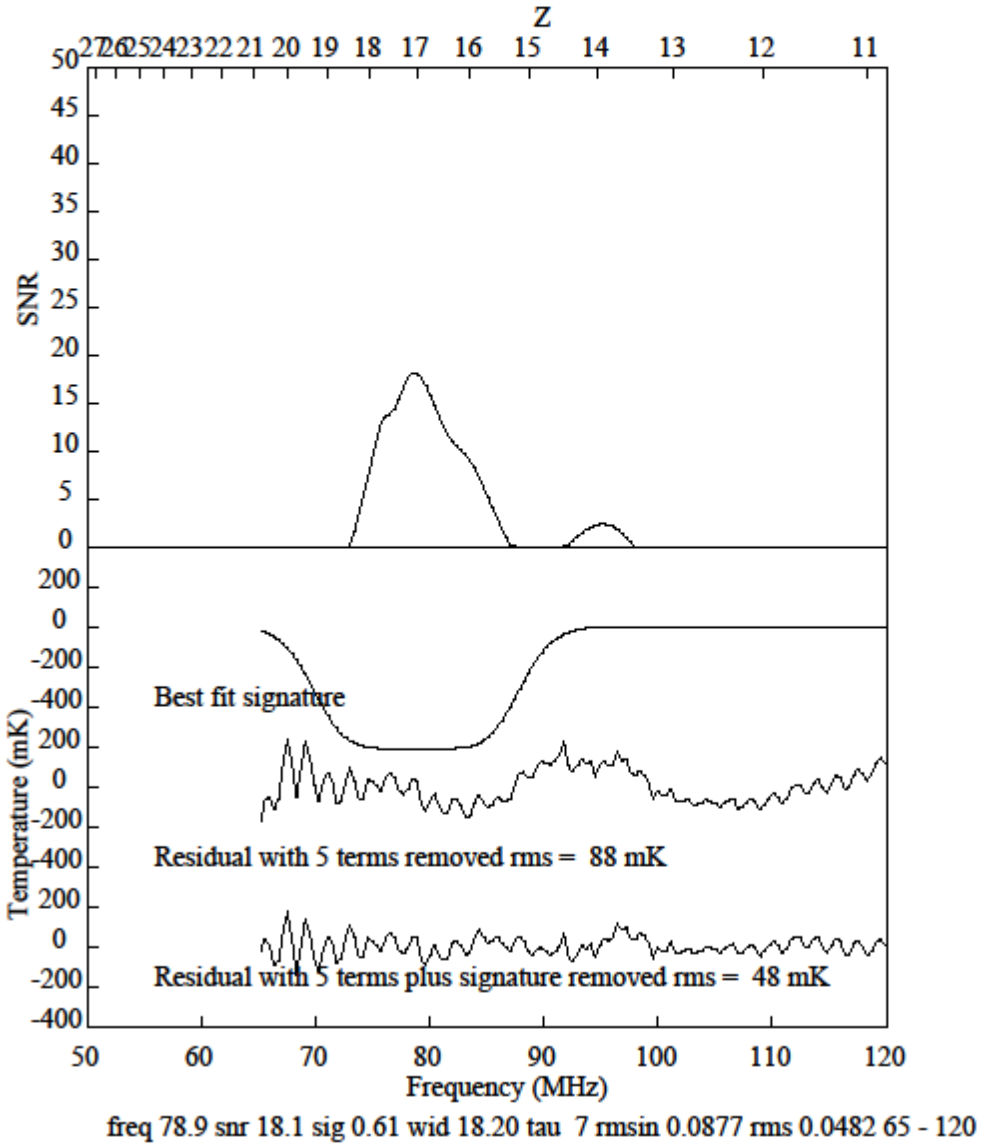

Figure 2. Midband signature search using 5 physical terms plus signature with τ=7.