NORSAR

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VII   SUMMARY OF SPECIAL TECHNICAL REPORTS/PAPERS PREPARED

VII.1   <u>NORSAR Moho Depths from Spectral Ratio Analysis of Long</u>
       <u>Period P-waves</u>

Using the spectral ratio method discussed by Berteussen (1976),
we have tried to estimate Moho depths under NORSAR. In the
processing of the data there were several problems which we
had to consider. From the simulation done (Berteussen, 1976)
we expected that a shortening of the window length used in
the calculation of the spectra should imply a sort of smoothing
of the spectral ratios. For the real data we did, however,
observe that in a number of cases such a shortening implied
an unsystematic movement or change in the peaks that can bias
the results seriously if care is not taken in the interpretation.
Avoiding all cases where such problems occurred, we ended up
with 112 spectral ratio estimates. Using the size of the
main spectral peak, we estimated the average crustal P-velocity
for a one-layer model to be 6.6 km/s. From the shape of the
spectral ratios we calculated depth to Moho only, as the
variation in the ratio across the array made it obvious that
it would be impossible to find a more detailed model. The
Moho depths found were then plotted on a diagram of the array
at the point where the respective signals were expected to
cross Moho. The data showed up to be consistent in that we
could not find drastically different depth values plotted close
to each other. Thus a signal coming from a certain direction
recorded at one instrument gave approximately the same Moho
depth as a signal from another direction crossing Moho at
the same location and being recorded at another instrument.
Smoothing the data and making depth contours we then get
the Moho interface displayed on Fig. VII.1.1. For more details
see Berteussen (1977). This interface agrees well with the
interface calculated by Berteussen (1975) which minimized the
short period teleseismic P-wave travel time residuals measured
at NORSAR, in that it tends to be deep on the western part
of the array (down to 38 km) and shallower (32 km) on the
eastern and especially southeastern part of it. It also agrees
principally with the structures found by Aki et al (1977) for
the area under NORSAR using their block model.

<div align="center">K.-A. Berteussen</div>

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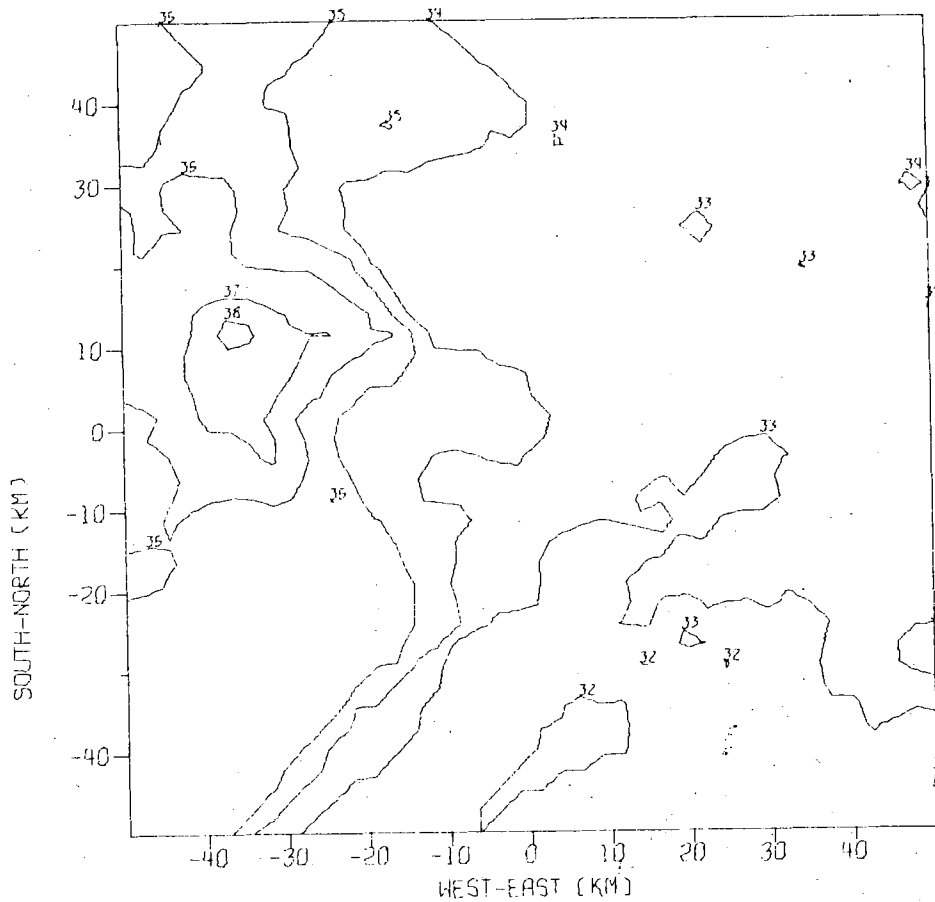   Inter., in press.

Fig. VII.1.1   NORSAR Moho depth contours estimated from spectral
                ratio analysis of long period P-waves.