File Format BARENTS50 model Version1.0 (15 Dec. 2005) and BARENTS3D model version 1.1 (23 Jan 2006).

The BARENTS3D model should be cited by: *NORSAR (2006): BARENTS3D, www.norsar.no/seismology/barents3d* accompanied by:

Ritzmann, O., N. Maercklin, J.I. Faleide, H. Bungum, W.D. Mooney and S.T. Detweiler (2007): A 3D geophysical model for the crust in the greater Barents Sea region: Database compilation, model construction and basement characterisation. Geoph. J. Int., **170**, 417-435, doi: 10.1111/j.1365-246X.2007.03337.x

Levshin, A., J. Schweitzer, Ch. Weidle, N. Shapiro and M. Ritzwoller (2007): Surface wave tomography of the Barents Sea and surrounding regions. Geoph. J. Int., **170**, 441-459, doi: 10.1111/j.1365-246X.2006.03285.x

Header line:

```
C Longitude Latitude Tile Province Elevation A-index X-Coordinate Y-Coordinate
```

Comments:
Longitude: Geographical coordinate %8.4f
Latitude: Geographical coordinate %8.4f
Tile: "Line"c"Column", e.g. 24c17, follows the node setup of the 3D velocity model %i"c"%i
Province: Geological province/location of the tile %8s
Elevation: Positive if above sea-level [km] %7.2f
A-index: 1 if the crustal was adjusted by thickness relationships %i
X/Y-Coordinates: In [km], calculated via GMT (Wessel and Smith, 1998) and a project origin at 0degE and 64degN using:

```
mapproject -Js40/90/1:100000 -R0/80/64/84 -Fk
```

Velocity model:

```
Depth Thickness Vp Vs Density Sigma/Error Layer-Index
```

Comments:
Depth: Depth to the top of the layer in [km] %10.4f
Thickness: In [km] %10.4f
Vp: In [km/s] %10.4f
Vs: In [km/s] %10.4f
Density: In [g/cm^3] %10.4f, available for crustal and mantle layers
Sigma/Error: Within crustal layer the standard deviation of observed seismic velocities for a single layer. Not available for mantle layers.
Layer-Index: w, water; su, upper sediments; sl, lower sediments; cu, upper crustalline crust; cm, middle crystalline crust; cl, lower crystalline crust; m, moho (uppermost mantle layer); sa sampled mantle model (5 km fixed thickness)

The mantle ("m" and "sa") layers were derived by sampling the 1x1° model BARMOD of Levshin et al. (2007) vertically every 5 km. Subsequently these "layers" were horizontally interpolated (gridded) on a cartesian (20x20 km) grid using `surface` by Wessel and Smith (1998). These grids were finally sampled at the node locations of the crustal velocity model BARENTS50. Differences in the Moho-depths between the crustal model BARENTS50 of Ritzmann et al. (2007) and the

surface wave inversion model of Levshin et al. (2007) were adjusted by increasing/decreasing the heights of the uppermost sampled mantle layer.

File Format BARMOD50 model Version1.0 (19 Dec. 2005)

Header line:

```
lat lon N
```

lat	latitude (deg, N positive)
lon	longitude (deg, E positive)
N	number of following number of depth nodes with velocity and density information at location lat/lon

(C-style format string: "%9.4f %9.4f %3d")

Velocity model:

N lines for the velocity model with six columns:
```
index1 index2 depth vp vs density
```

index1	depth node index (0…N-1)
index2	another index (in general unused)
depth	depth in km
vp, vs	P-velocity and S-velocity in km/s
density	density in g/cm**3

(C-style format string: "%4d %4d %9.4f %7.4f %7.4f %8.4f")

Wessel, P. and W.H.F. Smith (1998): New, improved version of Generic Mapping Tools released, Eos. Trans. AGU, 79, 579.