

## Explanation of FIN2000.gri geoid file

The FIN2000 geoid height model covers the whole of Finland. Although the model goes over the borders, users are advised not to use the model outside the Finnish borders, because the model was fitted only to the Finnish height system.

The model contains geoid heights that can be used to transform ellipsoidal heights in the ETRF89 system to orthometric heights in the Finnish N60 height system.

The model is given as a grid-file in ASCII format (FIN2000.gri).

The file starts with a header giving the grid borders and grid spacing:

```
59.000000    70.700000    17.500000    33.000000    0.025000    0.050000
```

### Explanation:

Minimum latitude: 59.00

Maximum latitude: 70.70

Minimum longitude: 17.50

Maximum longitude: 33.00

Latitude spacing: 0.025

Longitude spacing: 0.050

All the above numbers are in degrees.

After the header follow the geoid heights for each grid point. The values are given row-wise from north to south, starting in the northwest corner and ending in the southeast corner.

Number of rows:  $(70.70 - 59.00) / 0.025 + 1 = 469$

Number of columns:  $(33.00 - 17.50) / 0.05 + 1 = 311$

Total number of points:  $469 \times 311 = 145\,859$

The first 311 values are the values for the most northern row of the grid (latitude 70.70°). The second 311 values are for the second most northern row of the grid (latitude 70.675°).

The values in the last column of the grid (longitude 33.00°) are zero.

Geoid heights are given in metres with millimetre accuracy.

### Examples

Lat. 70.70°, Lon. 17.5°, N = 33.668 m (first value after the header)

Lat. 70.70°, Lon. 17.55°, N = 33.545 m (second value)

Lat. 59.00°, Lon. 32.95°, N = 16.627 m (second last value in file)

Lat. 59.00°, Lon. 33.00°, N = 0.00 m (last value in file)

Mirjam Bilker-Koivula  
Finnish Geodetic Institute

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