

A Standard File Format For Gridded Geodetic Data (G01p-252)

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Why another Grid format?

- Use of gridded data in geodesy and geomatics is increasing
 - More 2D latitude-longitude offset grids
 - More geoid and height correction models
 - More velocity and deformation grids
 - More position correction grids (e.g. loading, Earth tides)
 - Trend expected to continue
 - No standard file format exists
- Different organizations use different formats for the same data type (e.g. NADCON (USA), NTV2 (Canada))
- Multiple formats even within the same creating organization (e.g. NGA EGM96, EGM2008)
- Subsume the advantages of existing formats into one grid format
- We propose a “standard” gridded geodetic data exchange format (GGXF)

Many exclusive formats:

Esri
Aviso NTV2 csv DAT Surfer
netCDF HDF GXF VORF
GR3DF97A
VDatum Geosoft GTOPO EGM
GMT Nadcon ZMap DTED
GEOIDYY Geocon
Vertcon SRTM OSTN GRD

Proposed GGXF Format Features

Header

- Informative
- Full definition of file content
- Simple structure
- Easy to read and decode

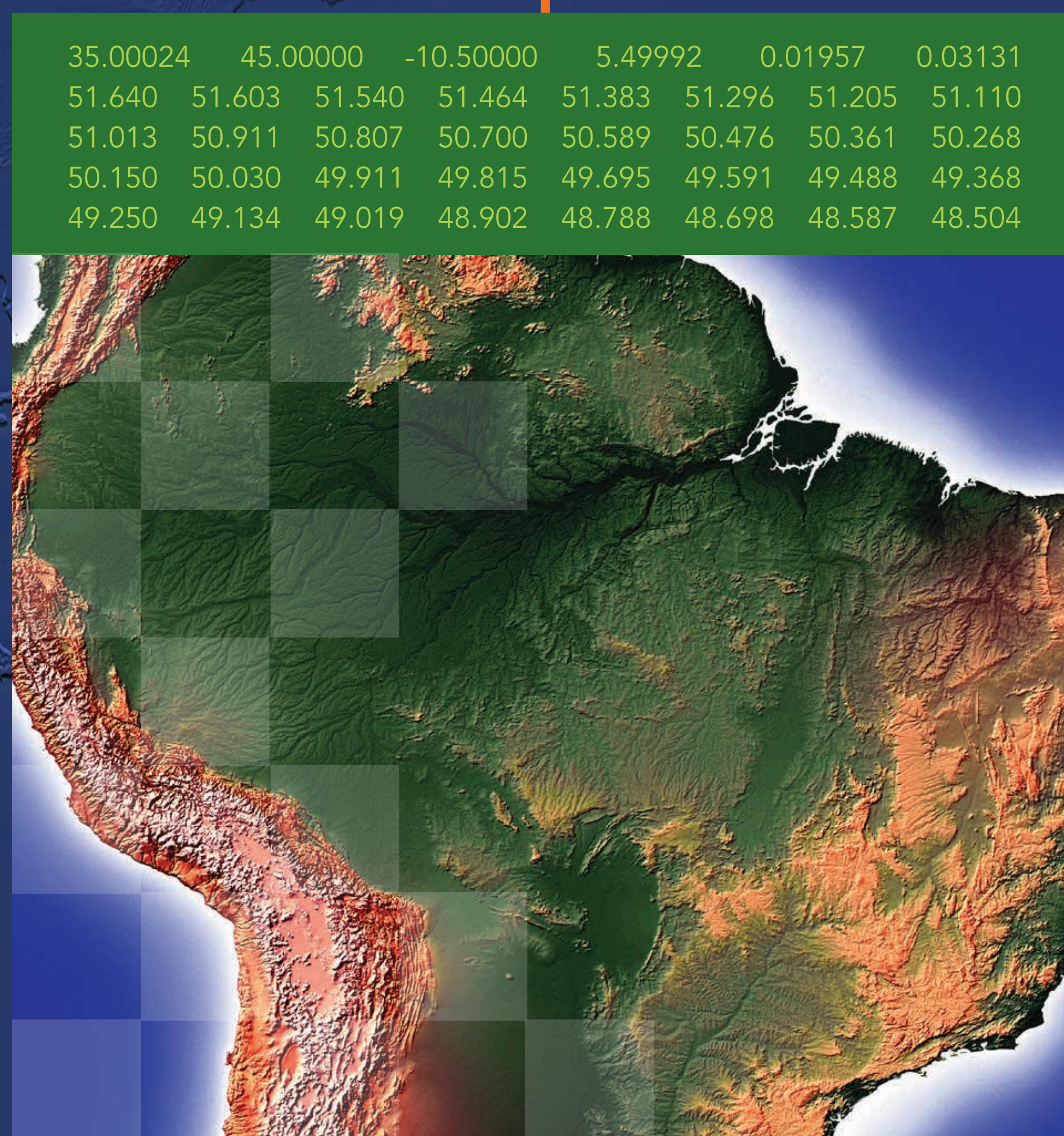
Structure

- Multi-dimensional
- Multi-resolution
- Handles 3D data
- Handles temporal data

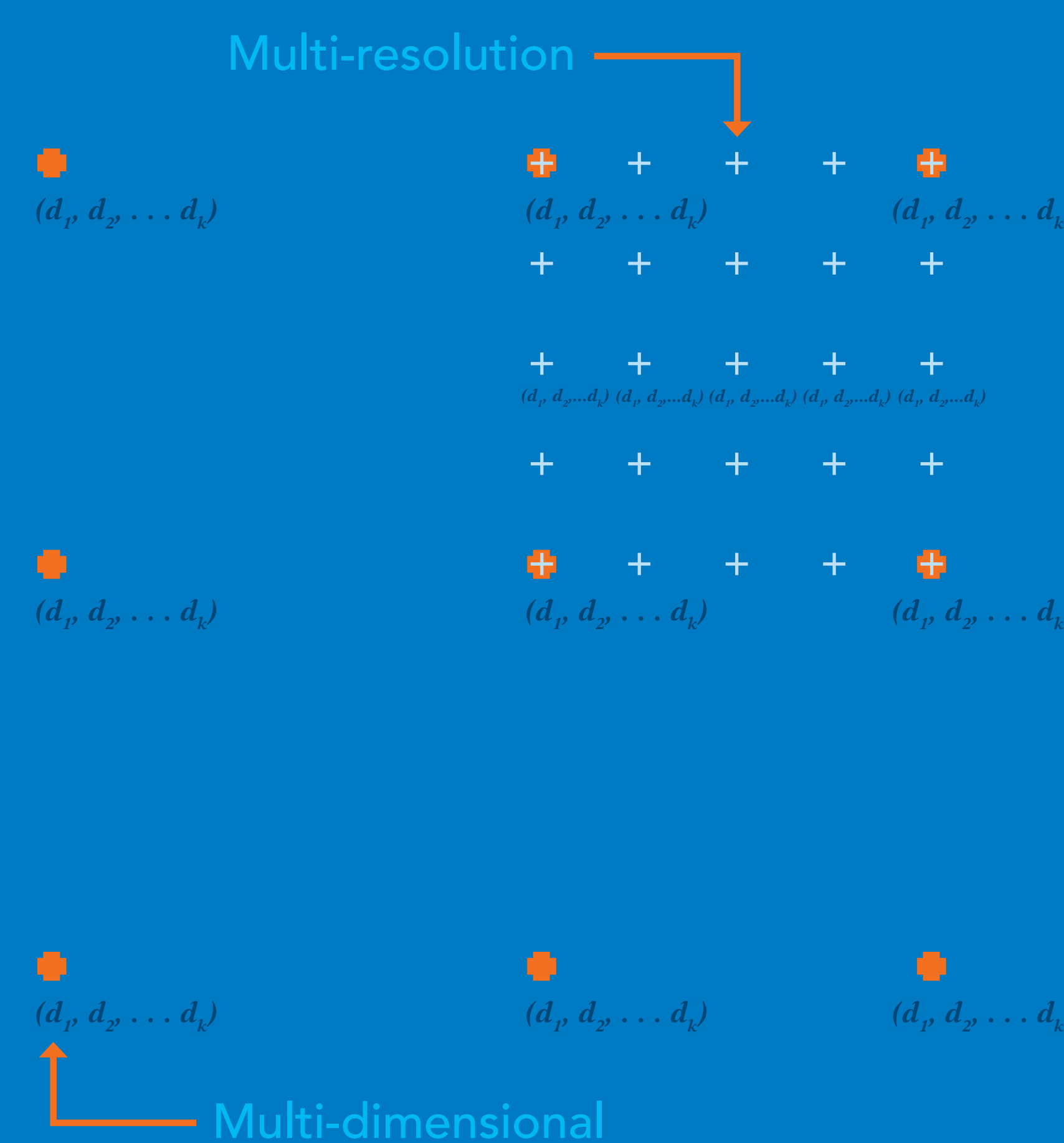
Automation

- Efficient
- Binary
- Human-readable (optional)
- Easy to implement
- Recognizable

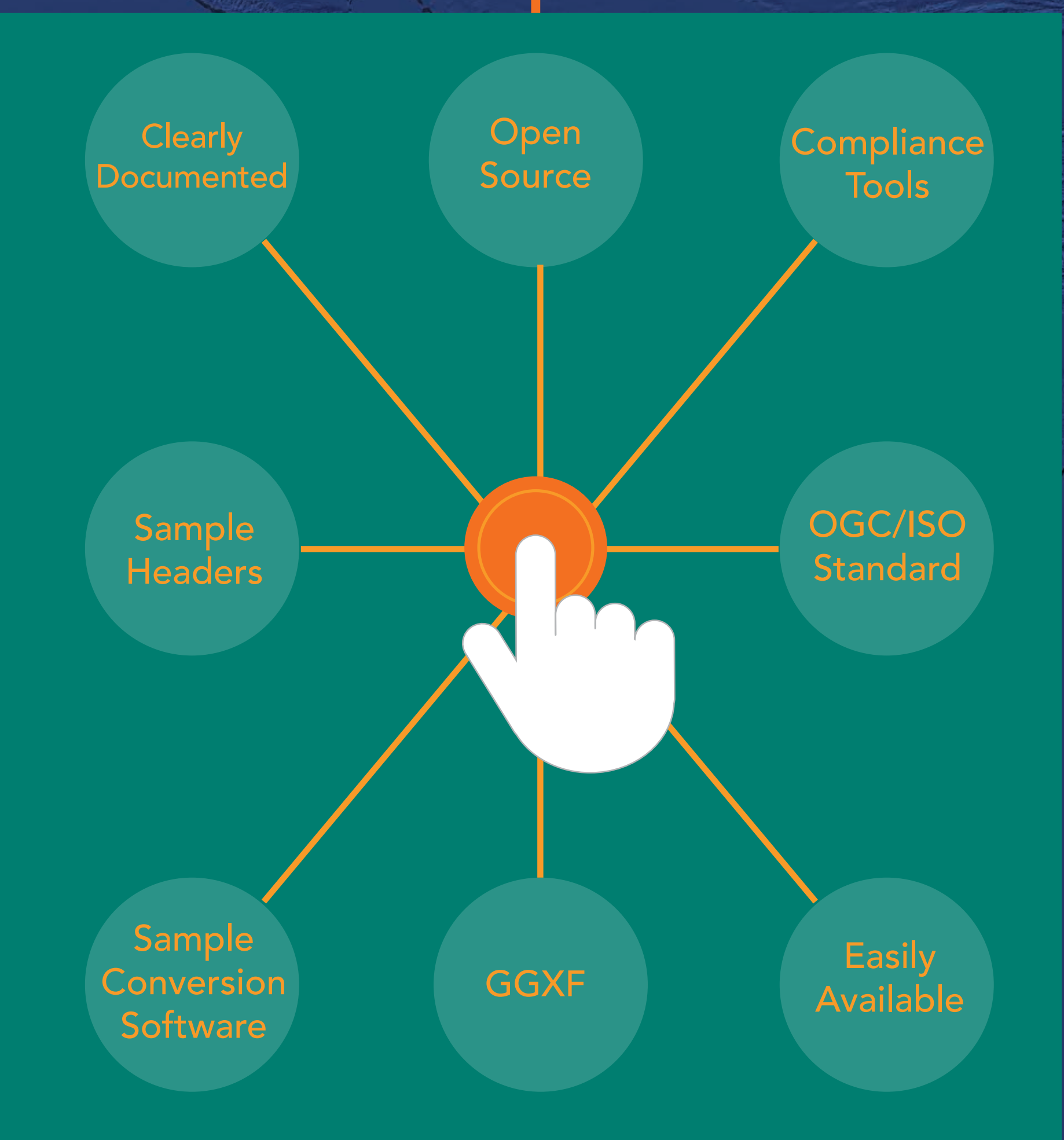
What Do These Data Mean?



Grid Structure



Usability and Ease of Adoption



Design Decision

established
scientific
widely-used
complex format
mature

netCDF?

new format
geodesy-specific
unknown uptake
simple format
undeveloped

New Format?

Conclusions

A new gridded geodetic data format will:

- Eliminate distinct software per format
- Reduce the number of independent geodetic grid file formats
- Facilitate faster user access to new geodetic grids
- Subsume the advantages of existing grid formats into a single format



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