



Best Practices for science communication  
with high stakes audiences:

# Visualizing data from the National Geodetic Survey

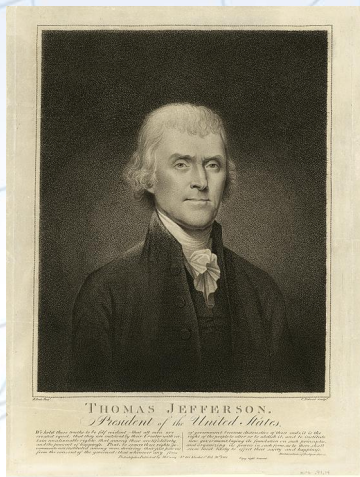
## SOS Users Collaborative Network Workshop

December 1, 2020

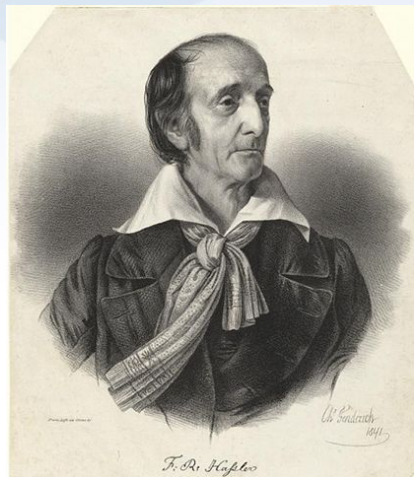
Brian Shaw  
[brian.shaw@noaa.gov](mailto:brian.shaw@noaa.gov)

# NOAA and NGS

Our Nation's First Civilian Science Agency



**1807**  
Thomas Jefferson  
Survey of the Coast

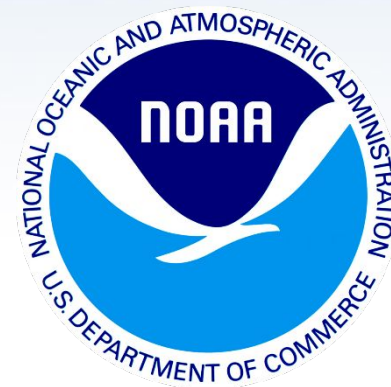


**1811**  
Ferdinand Hassler  
Superintendent

**1836**  
U.S. Coast  
Survey



**1878**  
U.S. Coast and  
Geodetic Survey



**1970**  
NOAA is established

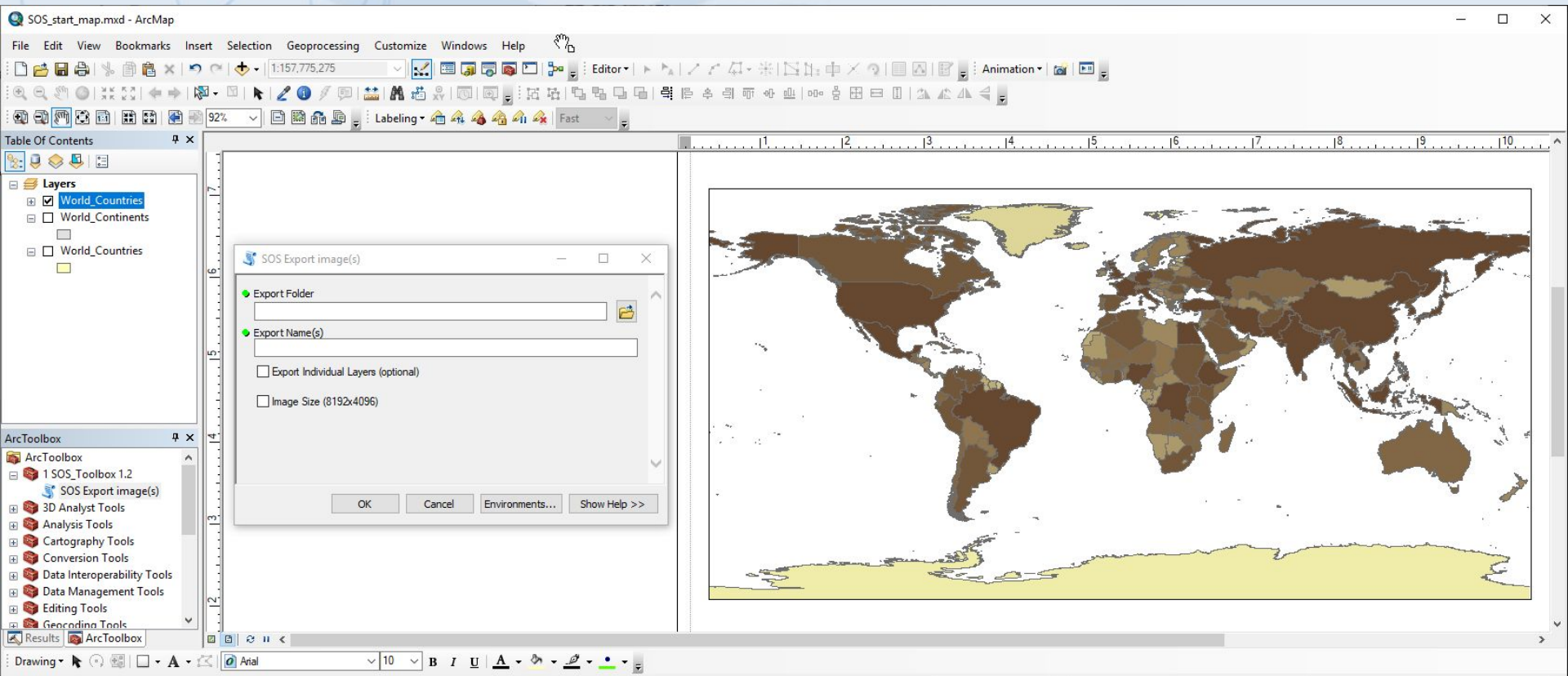
# NGS' Mission

To define, maintain and provide access to the **National Spatial Reference System (NSRS)** to meet our Nation's economic, social, and environmental needs.

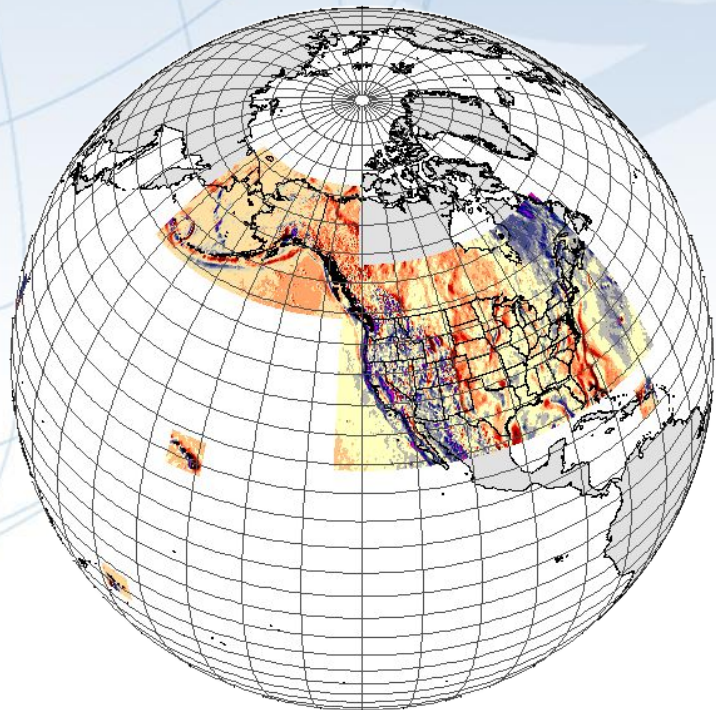
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The **NSRS** is a consistent coordinate system that defines latitude, longitude, height, scale, gravity, orientation, and shoreline throughout the United States.

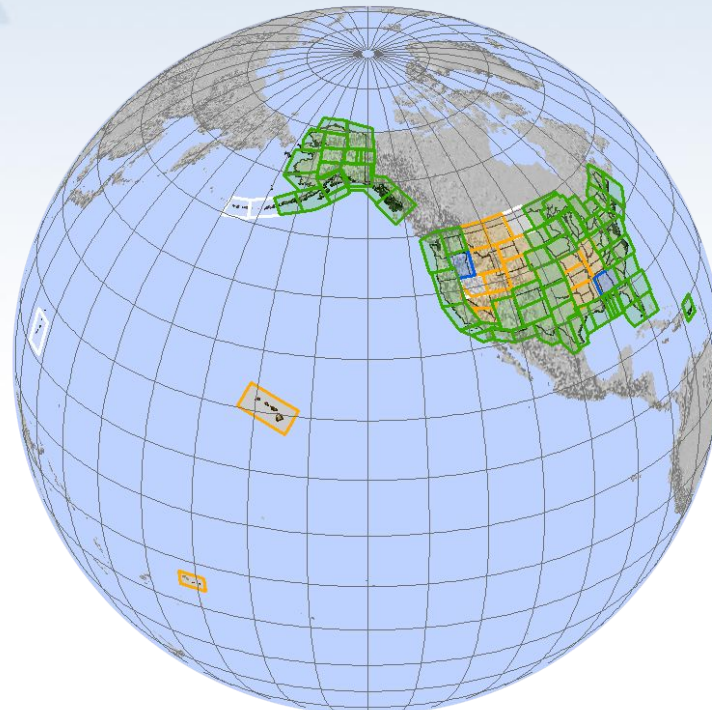
# Map Template and Script



# Non Global Datasets

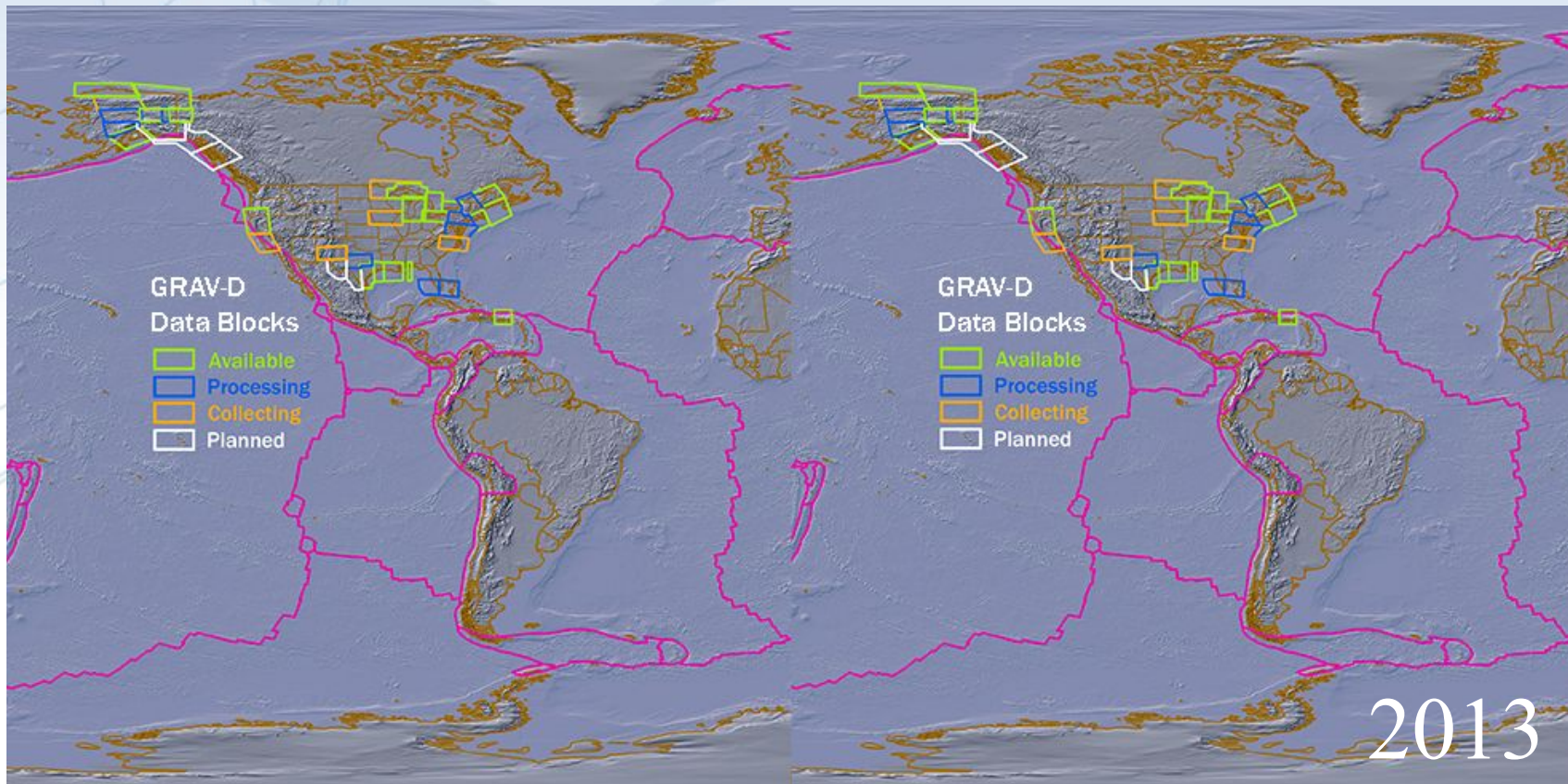


**DEFLEC12B**

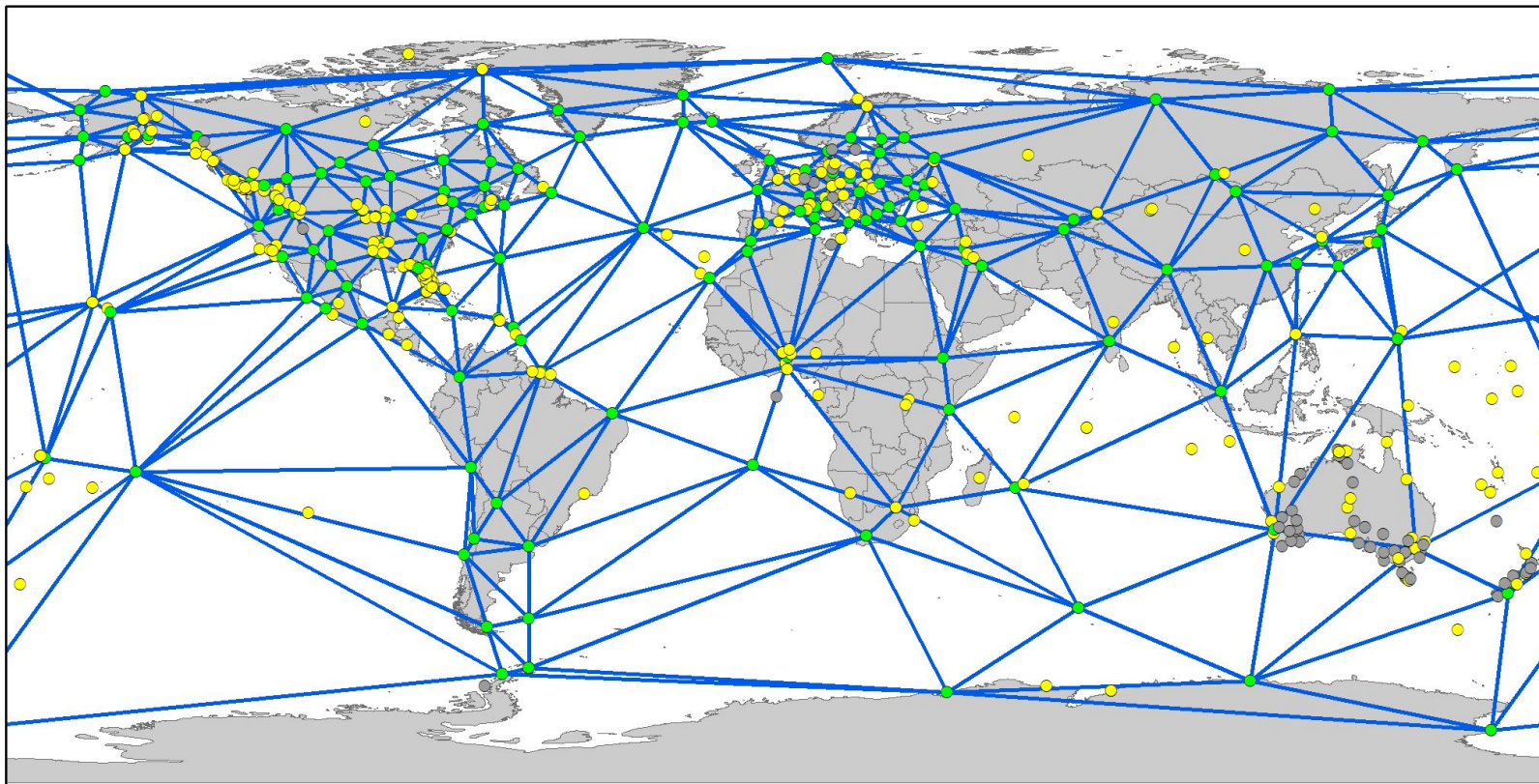


**GRAV-D**

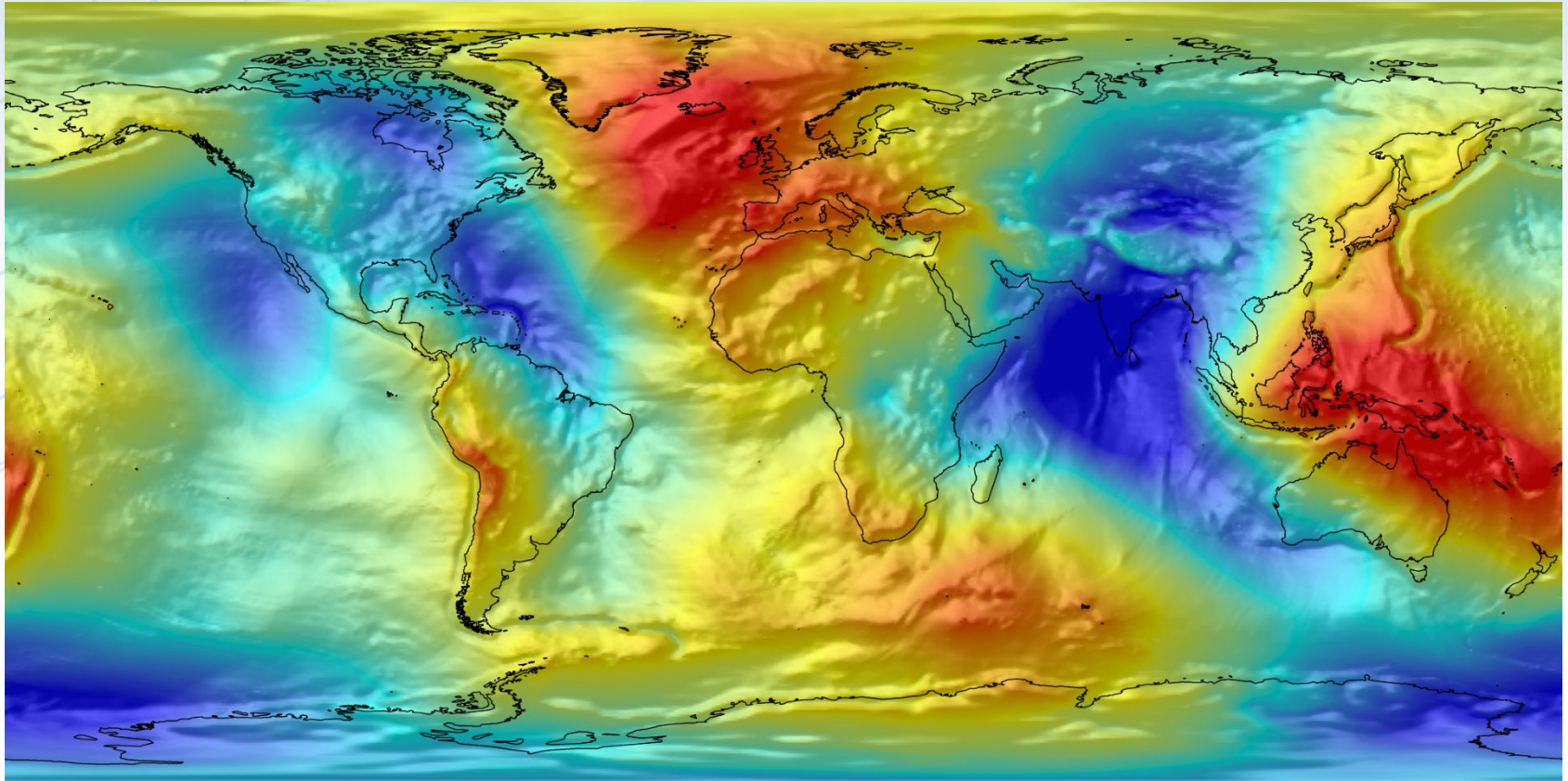
# Slicing Non Global Datasets



# Global GNSS Orbit Processing

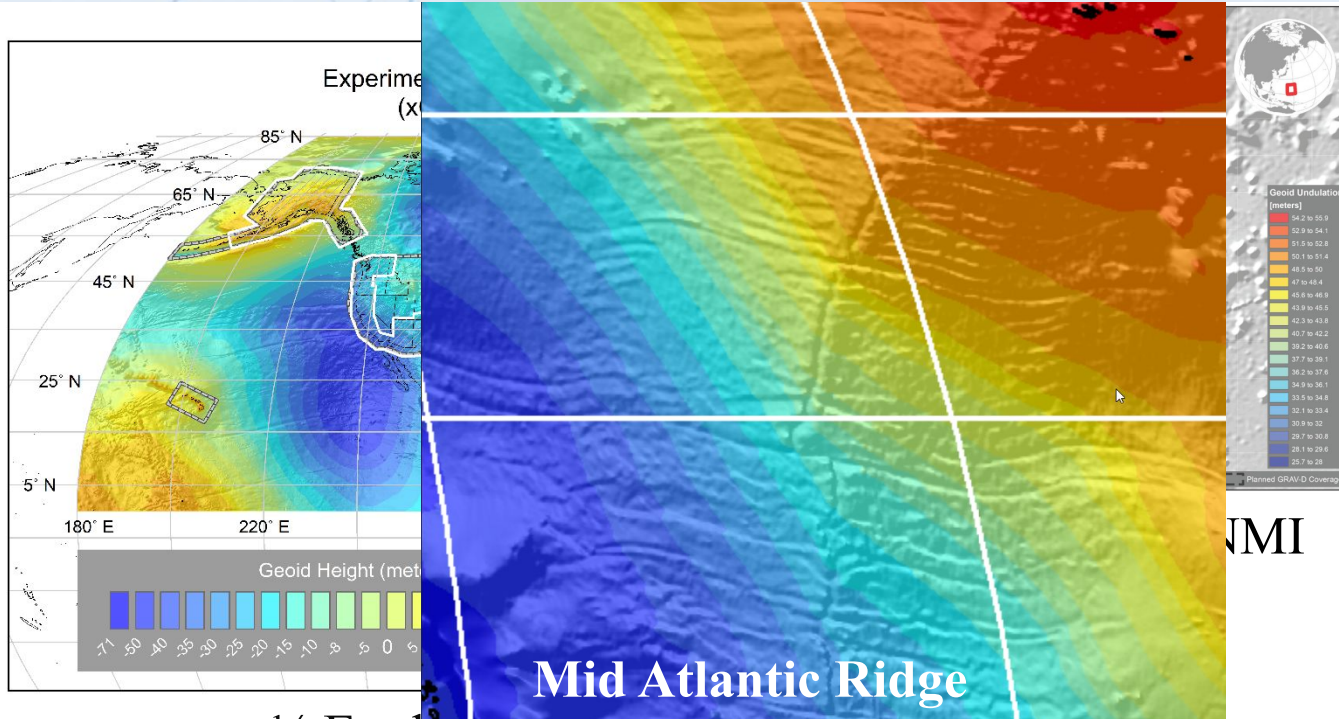


# EGM08 Global Geoid



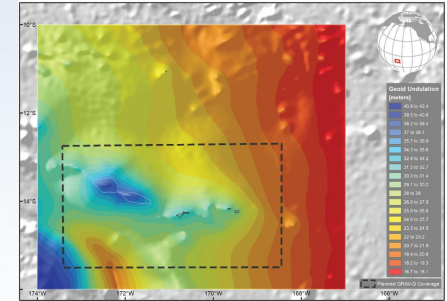


# xGEOID20 Future US Geoid



1/4 Earth's Surface

Mid Atlantic Ridge



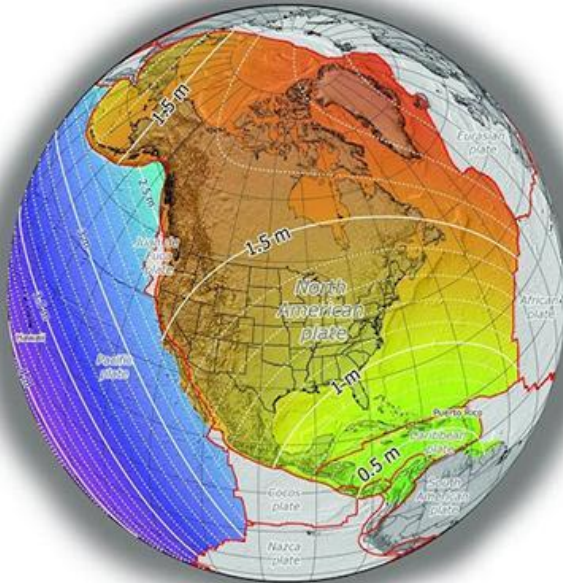
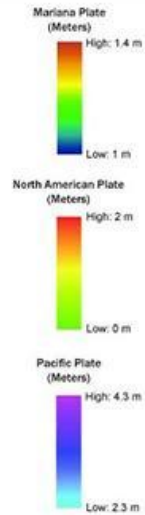
American Samoa

NMI

# Modernizing the NSRS

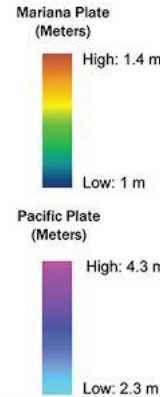
Approximate Horizontal Change

Approximate Horizontal Change North American Plate

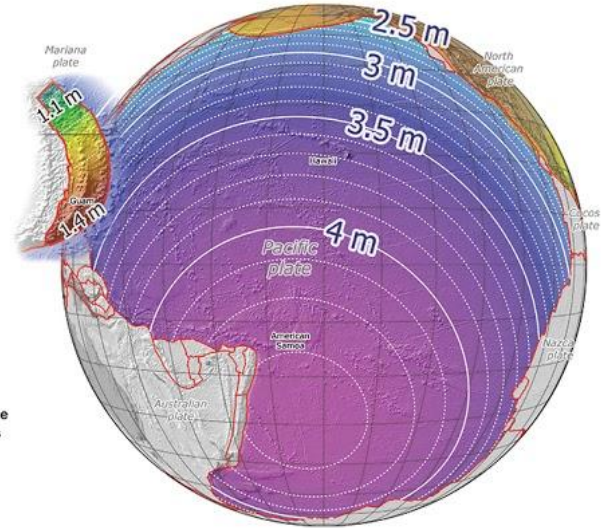


Tectonic Plate Boundaries

Approximate Horizontal Change Pacific Plate

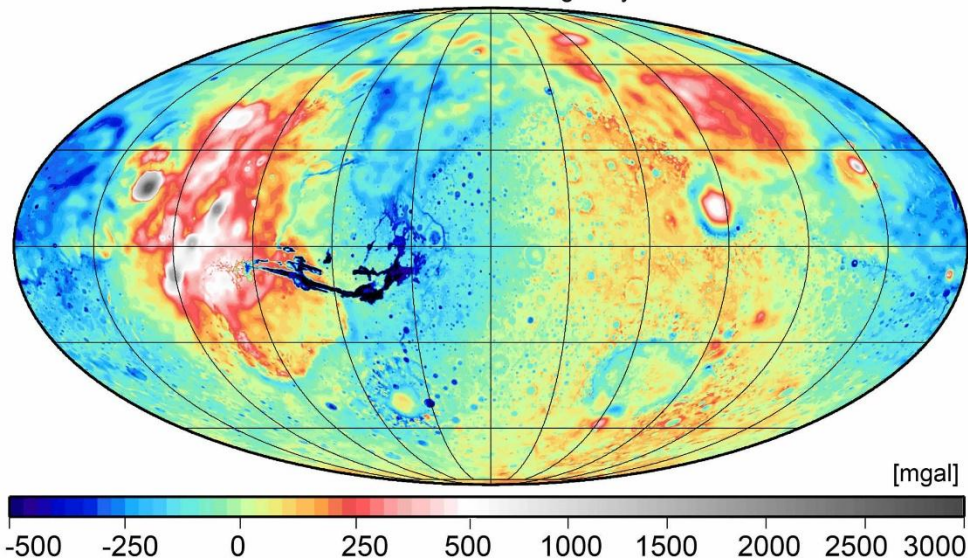


Tectonic Plate Boundaries



# Visiting Scientists

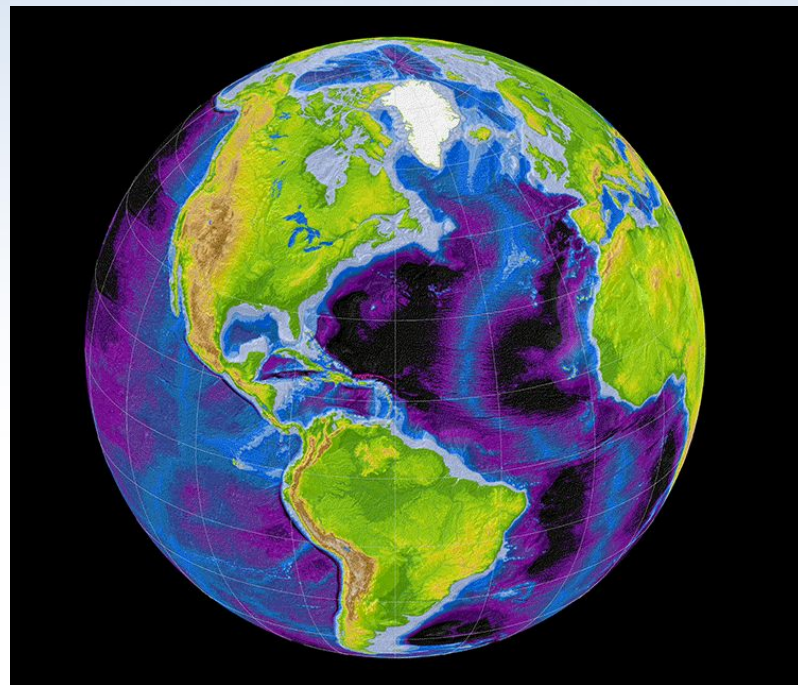
MGM2011 free-air gravity



## Mars Gravity

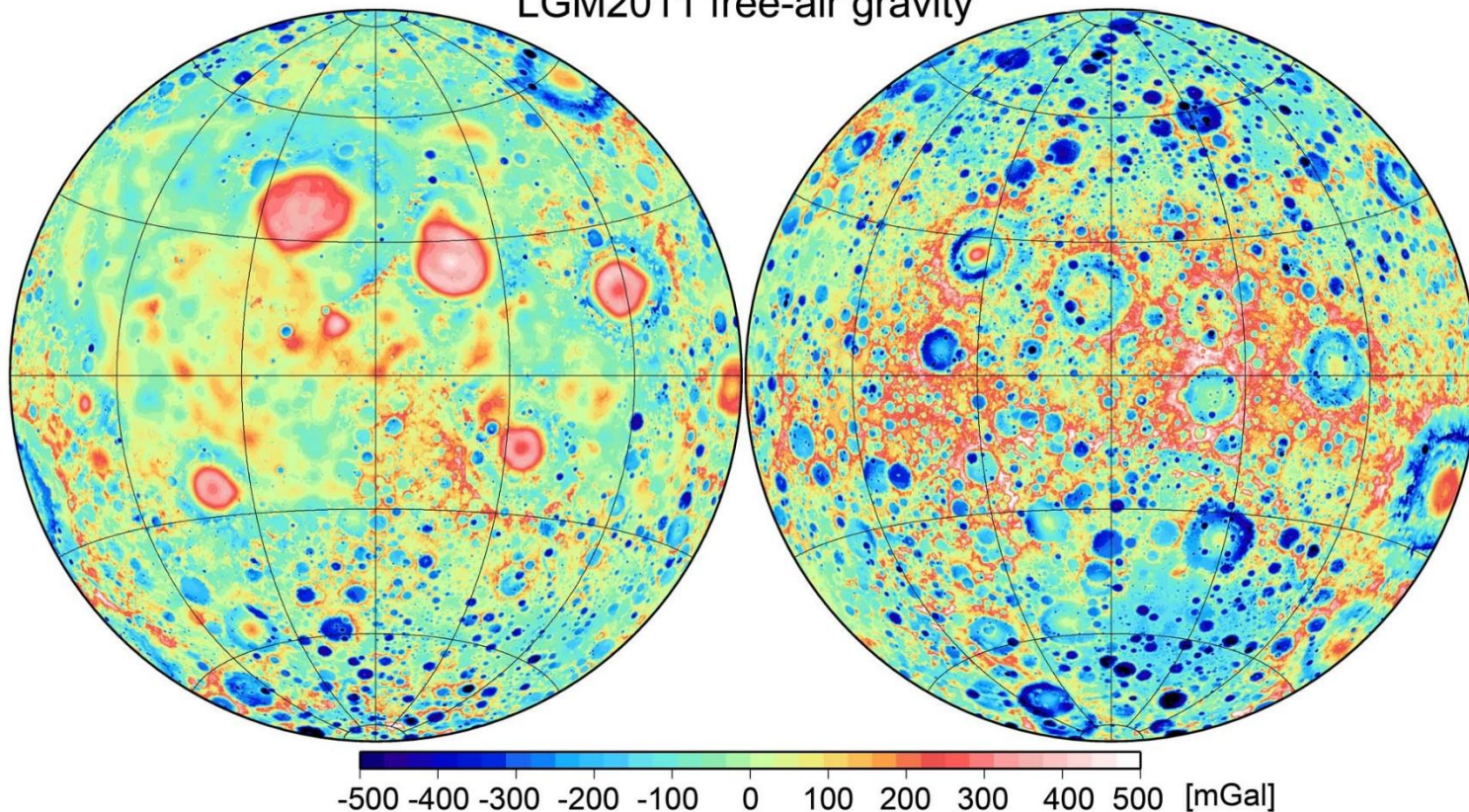
Christian Hirt

<http://ddfe.curtin.edu.au/models/>



## Earth2014 Topo

LGM2011 free-air gravity



Christian Hirt  
<http://ddfe.curtin.edu.au/models/>

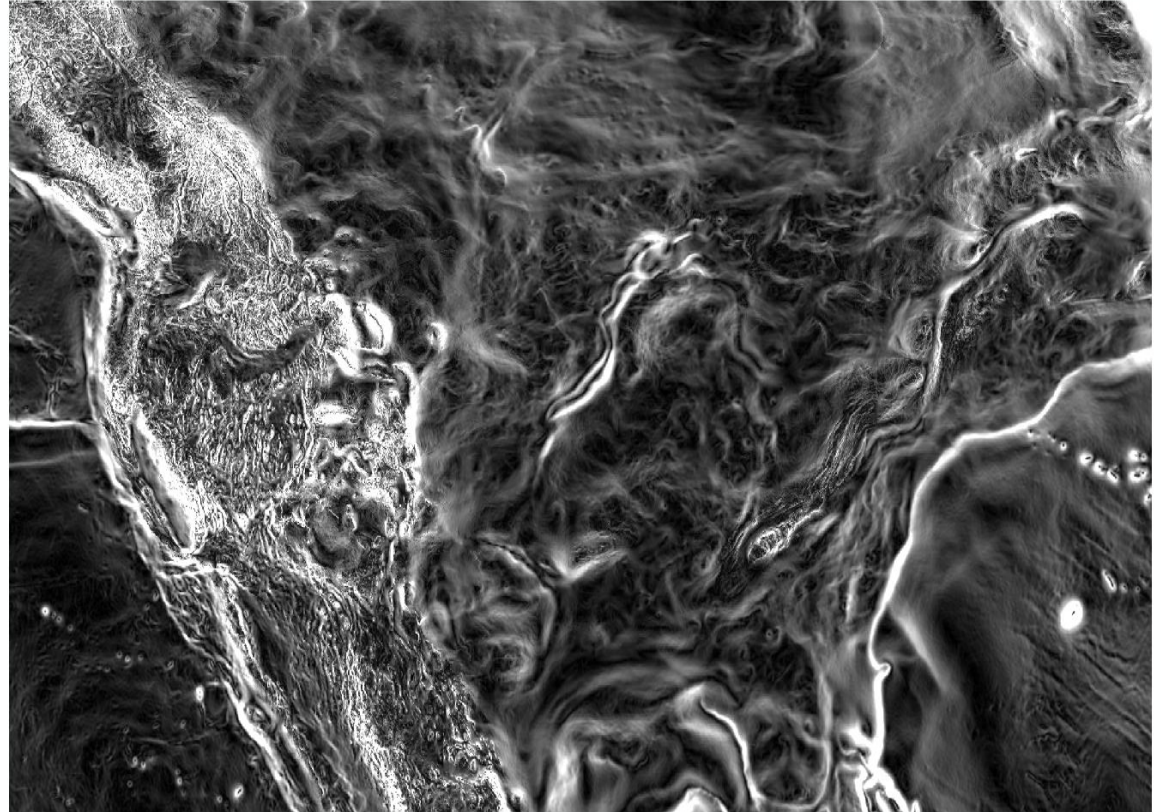
# Lunar Gravity Model

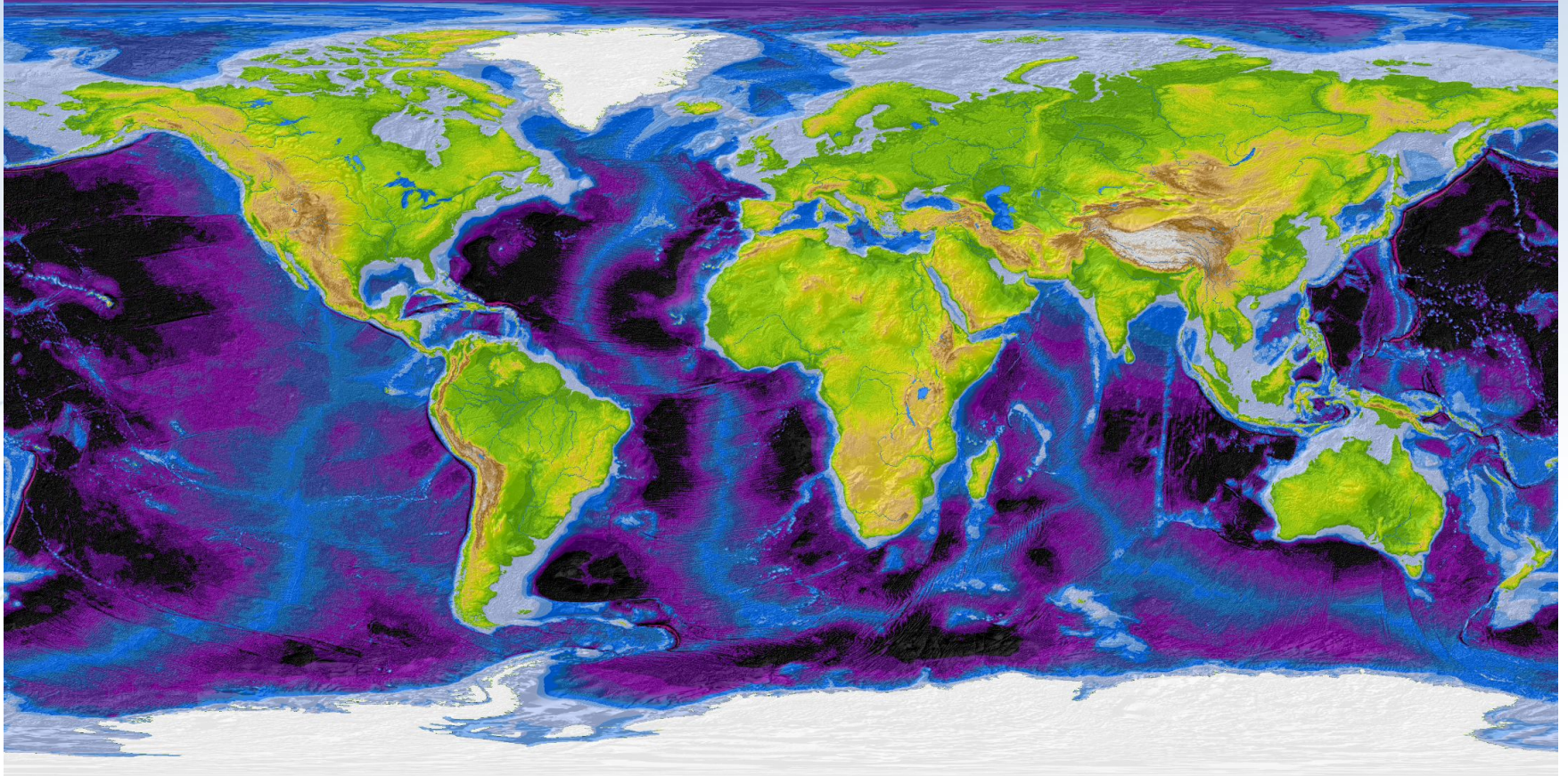
## Magnitude of the Deflection of the Vertical

# Questions?

SOS Workshop  
December 1, 2020

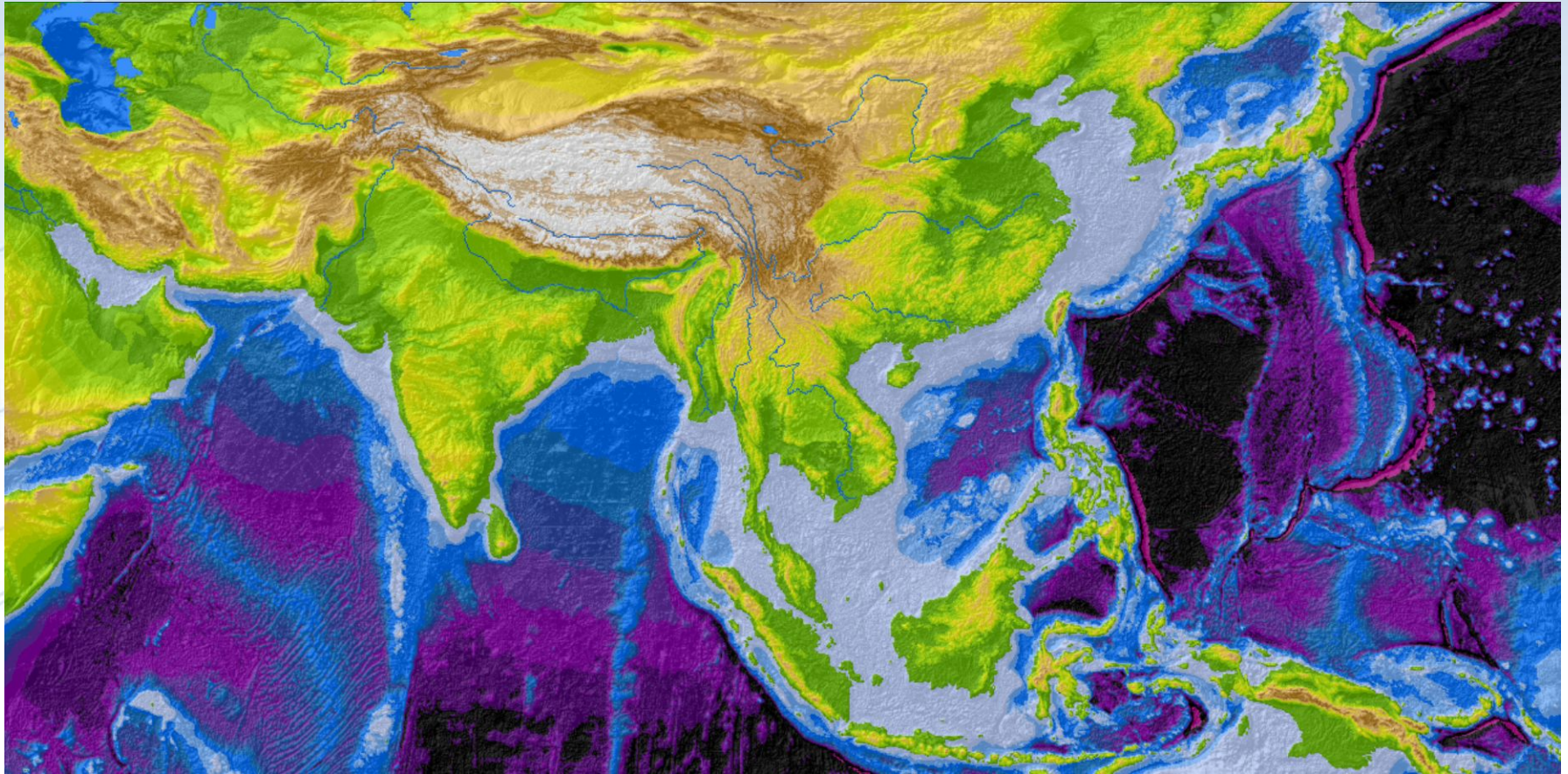
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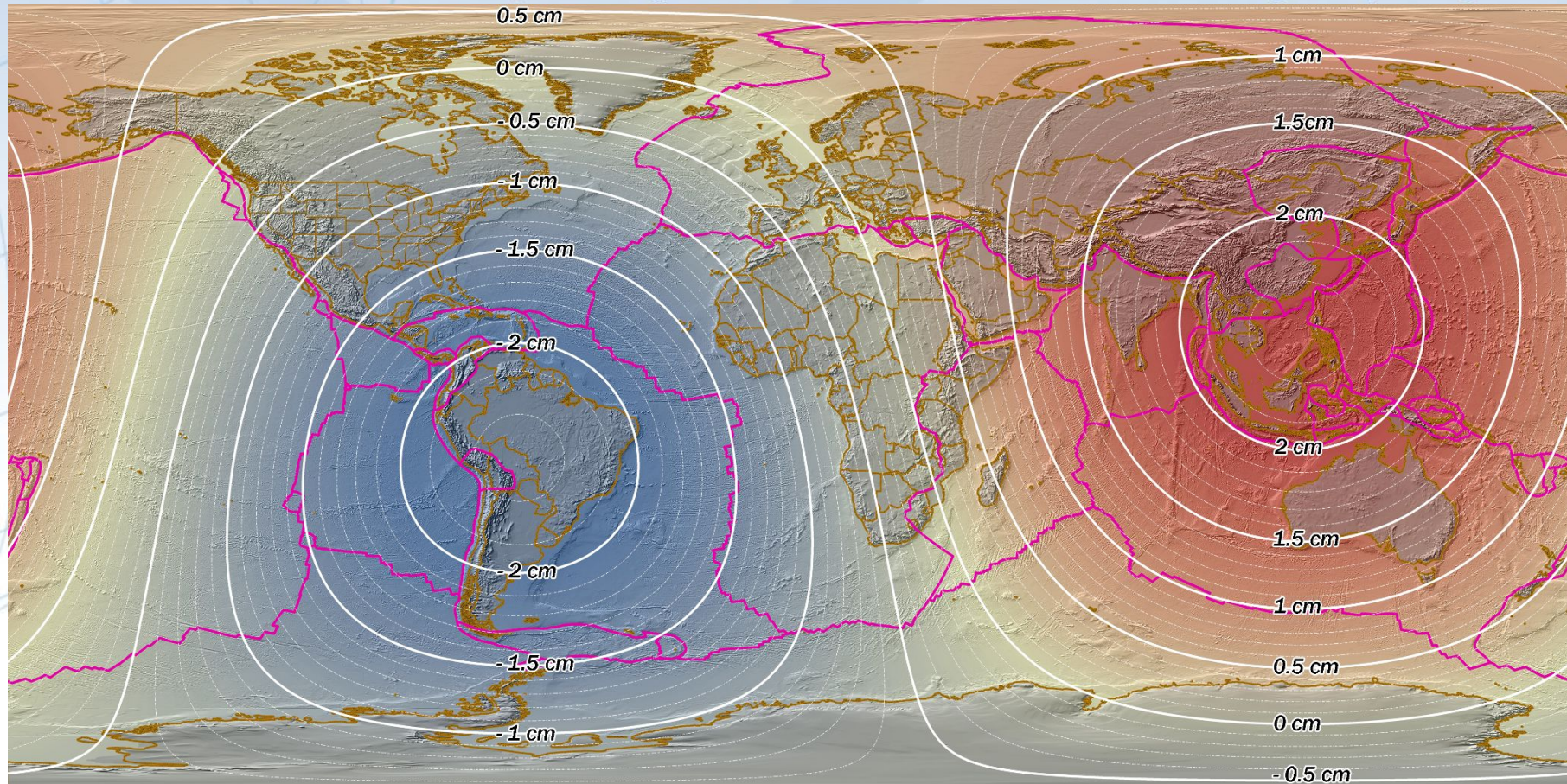
Christian Hirt  
<http://ddfe.curtin.edu.au/models/>

Earth2014



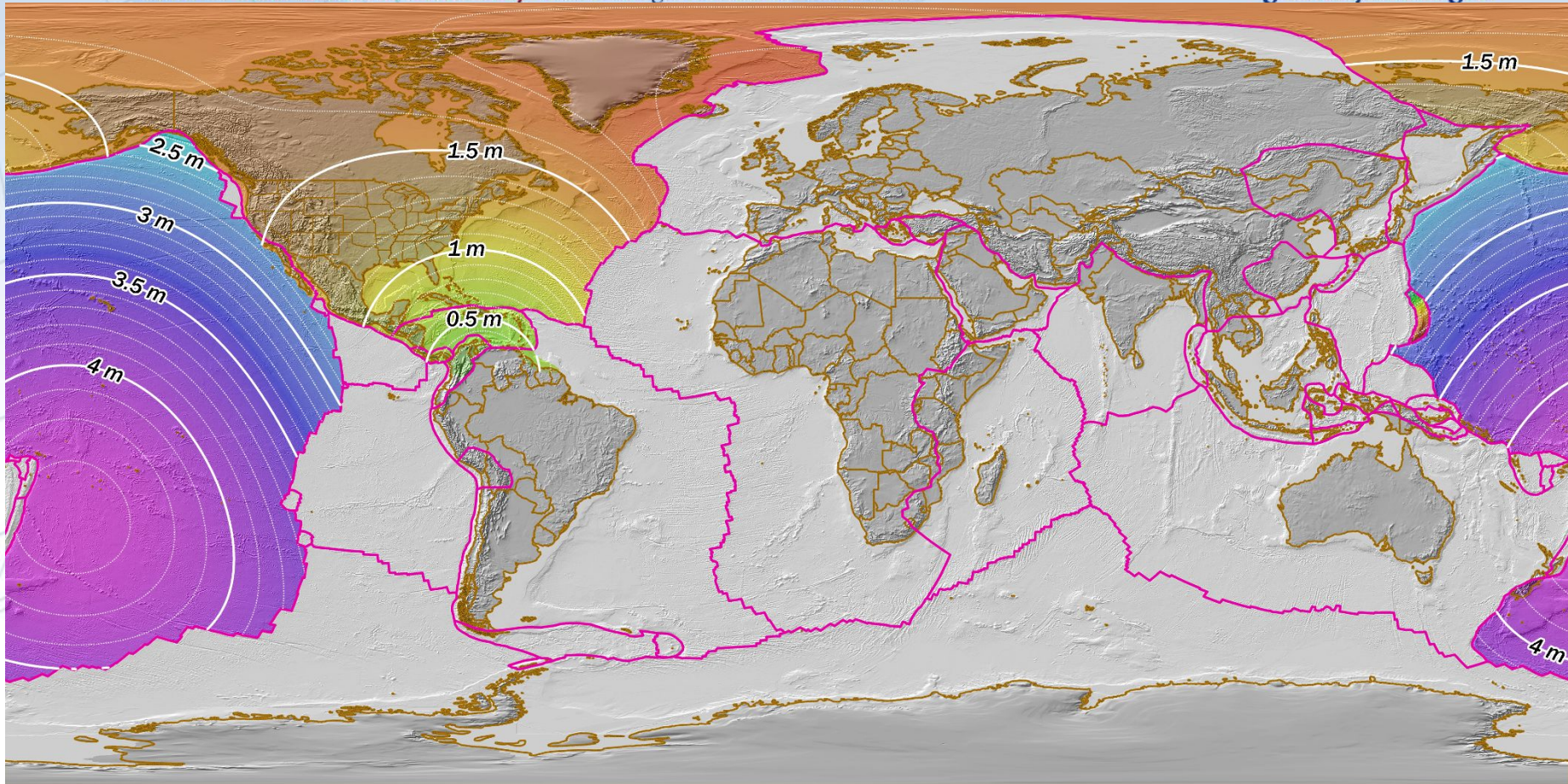
Christian Hirt  
<http://ddfe.curtin.edu.au/models/>

Earth2014



# Modernizing the NSRS





## Modernizing the NSRS