



The American Association for Geodetic Surveying



Scott P. Martin, PLS

AAGS 2024 President

California Geodetic Coordinator

Updates from the American Association for Geodetic Surveying
and the
California Spatial Reference Center



64th Meeting of the Civil GPS
Service Interface Committee





The American Association for Geodetic Surveying



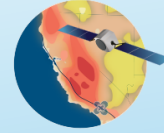
AAGS Updates

- Geodetic Surveying Certification examination
- Geospatial Association Collaboration
- Other Initiatives and Benefits



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SIO/SOPAC/CSRC Updates

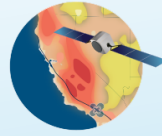
NOAA/NGS FY 23 Geospatial Modeling Competition Awards

Scripps Institution of Oceanography (SIO) is receiving \$1,300,000 annually for a potential total of \$6,500,000 over a 5-year period for a project titled "NSRS Intra-Frame Deformation Model and New SIO Geodesy Program." The primary objectives of this project are to create a formal geodesy program in support of the nationwide deficiency of geodesists and to modernize geodetic models for the NSRS.



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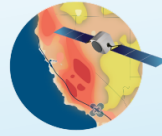
Geodesy Track at Scripps Institute of Oceanography (SIO)

- This project includes five years of funding for five graduate students, preferably U.S. Citizens.
- The students are expected to follow the new Geodesy track with the existing Geophysics Curriculum Group and have a geodesy-related thesis. [One or more of the students will focus on time dependent geodetic reference system for western North America based on combined GPS/GNSS and InSAR – will interact with NGS employees].
- Have already taken on two students (one first year, one second year)
- Funding pending from National Geospatial-Intelligence Agency (NGA) for two more students
- Forming internal and external education committees



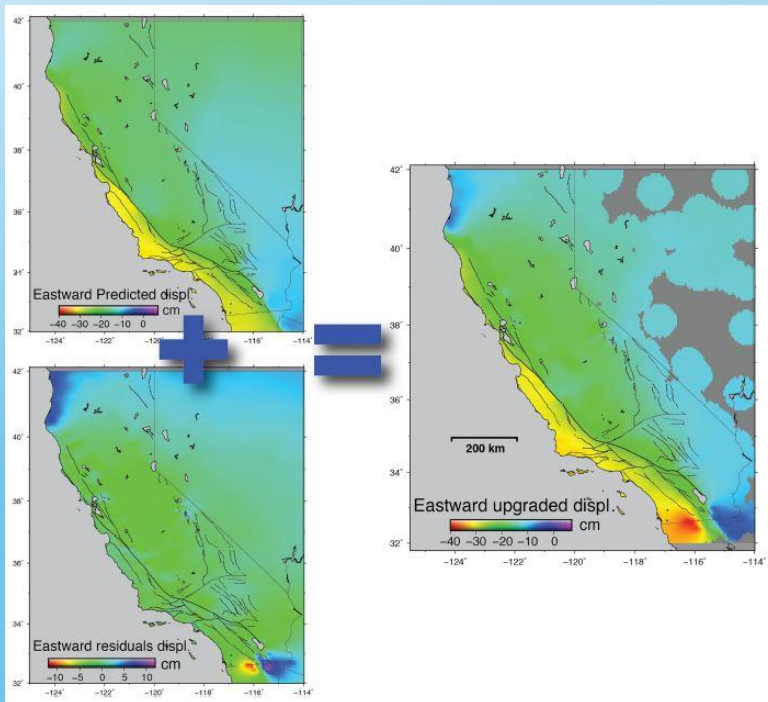
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SIO/SOPAC/CSRC Updates

Intra-frame Deformation Model (IFDM) – Dynamic Datum

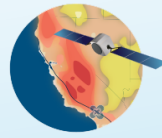


Estimate a position at any location and point in time with respect to a reference epoch, based on the interpolation of weekly displacement grids. The final upgraded weekly model (right) here shown for the **east component** is the sum of the **interseismic displacement field** modeled by Zeng and Shen (2017; upper left) and the **surface interpolation of residuals** (lower left). **The resulting time-dependent grid on the right contains both linear and non-linear corrections.** Source: Klein et al. (2019).



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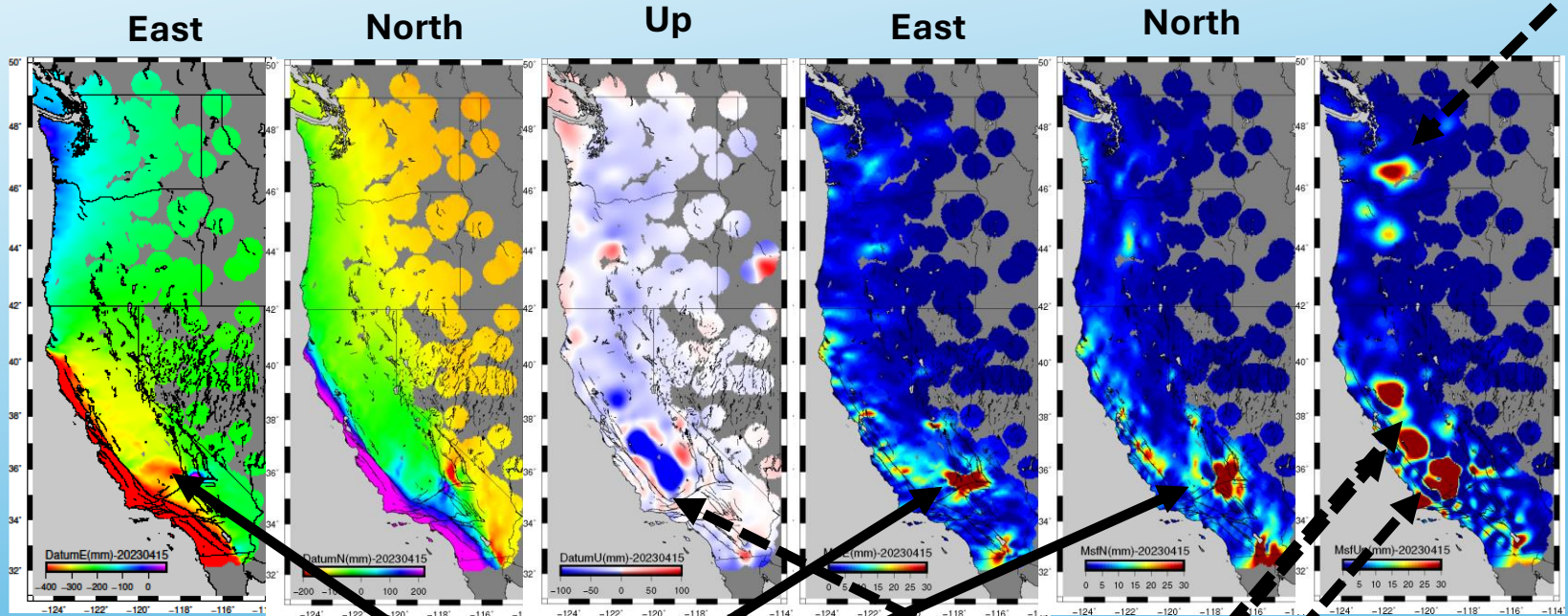




Weekly Displacement Grids (Secular Motions + Transients)

--Displacements (mm)--

--Misfits (mm)--



Steady and transient displacements: 2023-04-15 with respect to 2010-01-01

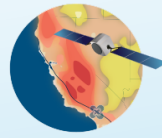
July 2019 Ridgecrest earthquakes

San Joaquin & Sacramento Valleys Subsidence



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SCIP Dynamic Datum Utility

SOPAC Coordinate Interpolator Prompt

Translate coordinates across epochs

[Info and references](#) • [Contact](#)

Input

Single Point List of Points

Format

Input Datum:

Output Datum:

Date Format:

Lat/Lon Format:

Height Units:

Location

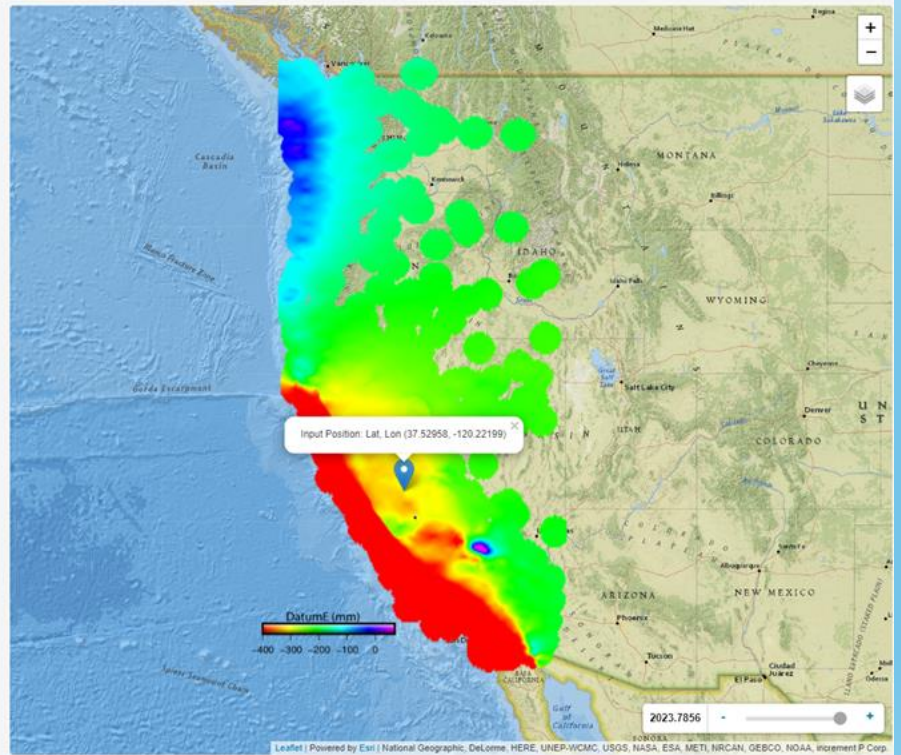
Latitude (N):

Longitude (E):

Ellipsoidal Height (ft) (optional):

T-in (range: 2000-present):

T-out (range: 2000-present):



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SIO/SOPAC/CSRC Updates Other Initiatives and Benefits

- Monitors and maintains the positional integrity of the California Spatial Reference System under codified authority
- Provides regional epoch updates after seismic events to account for co and post-seismic displacements.
- Will provide another realization of NAD83(2011), likely epoch 2024.50. Current epoch is 2017.50 (2019.55 in areas displaced by 2019 Ridgecrest events).
- Working closely with State Department of Water Resources to establish subsidence monitoring instrumentation and remote sensing data capture and analysis



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Other California Initiatives

- DOT leading “crowd-sourced” effort to collect observations on passive marks across the state.
 - Data to be processed and submitted through OPUS Projects for inclusion in the NSRS (Bluebooked).
 - To date, 440 marks have been observed, of which 36 are newly set marks. Over 620 observations have been performed by state and local agencies and private surveyors.
 - DOT staff performing all data processing and file preparation for submittal and acceptance.
 - Data expected to be submitted by early October. Key priority is to have marks reprocessed in the NSRS to provide improved access.



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