



## NSRS Modernization News

For all issues of **NSRS Modernization News**, visit:  
[geodesy.noaa.gov/datums/newdatums/TrackOurProgress.shtml](https://geodesy.noaa.gov/datums/newdatums/TrackOurProgress.shtml)

The National Geodetic Survey (NGS) plans to modernize our National Spatial Reference System (NSRS) in late 2022. This means that the North American Datum of 1983 (NAD83) and the North American Vertical Datum of 1988 (NAVD88) will be replaced by a new geometric reference system/frame and a new gravimetric datum.

This project started several years ago and NGS has continually produced updates to keep geospatial professionals informed. They have also engaged with developers from the geospatial industry to help prepare their products and services for the transition.

The following links provide valuable information, including why this project is needed and how coordinate positions will be improved:

- New Datum Replacement: <https://www.ngs.noaa.gov/datums/newdatums/index.shtml>
- Technical blueprints defining the 2022 modernization: <https://www.ngs.noaa.gov/datums/newdatums/WhatToExpect.shtml>
- Recorded NGS Webinar Series (many of the monthly webinars focused on the 2022 modernization project): [https://www.ngs.noaa.gov/web/science\\_edu/webinar\\_series/2020-webinars.shtml](https://www.ngs.noaa.gov/web/science_edu/webinar_series/2020-webinars.shtml)

The NSRS modernization project will replace NAD83, along with all the current State Plane Coordinate Systems (SPCS). An exciting improvement will be the implementation of single statewide zones developed using a conformal projection system. This will be in addition to the smaller zones with less distortion similar to what California currently has with the California Coordinate System of 1983 (<https://www.ngs.noaa.gov/SPCS/index.shtml>).

- Preliminary zone design maps can be found here, including the proposed statewide zone for California: <https://www.ngs.noaa.gov/SPCS/download.shtml>

Worthy of note is that the definition of “*foot*” in the new SPCS will no longer be the U.S. Survey foot (used in California for CCS83 and CCS27). NGS, through the National Institute of Standards and Technology (NIST), has eliminated the legal use of the U.S Survey foot definition in the new systems ([https://www.ngs.noaa.gov/web/science\\_edu/webinar\\_series/ending-us-survey-foot.shtml](https://www.ngs.noaa.gov/web/science_edu/webinar_series/ending-us-survey-foot.shtml)).

One of the major challenges with the transition will be moving legacy data referenced to previous systems (NAD83 or NAD27) into the new systems with minimized error in the transformations. NGS recognizes this and is building robust transformation tools for this purpose. They have solicited the help of the user base to strategically collect observations across the country (GPS on Bench Marks campaign) that will be utilized to enhance the accuracy of these 3-D transformations. More on this all-encompassing tool can be found here: <https://www.ngs.noaa.gov/NCAT/>

NGS has Regional Geodetic Advisors who are available to answer questions and give presentations (on advance notice and based on availability). Dr. Dana J. Caccamise represents the Pacific Southwest region, including California and Nevada:

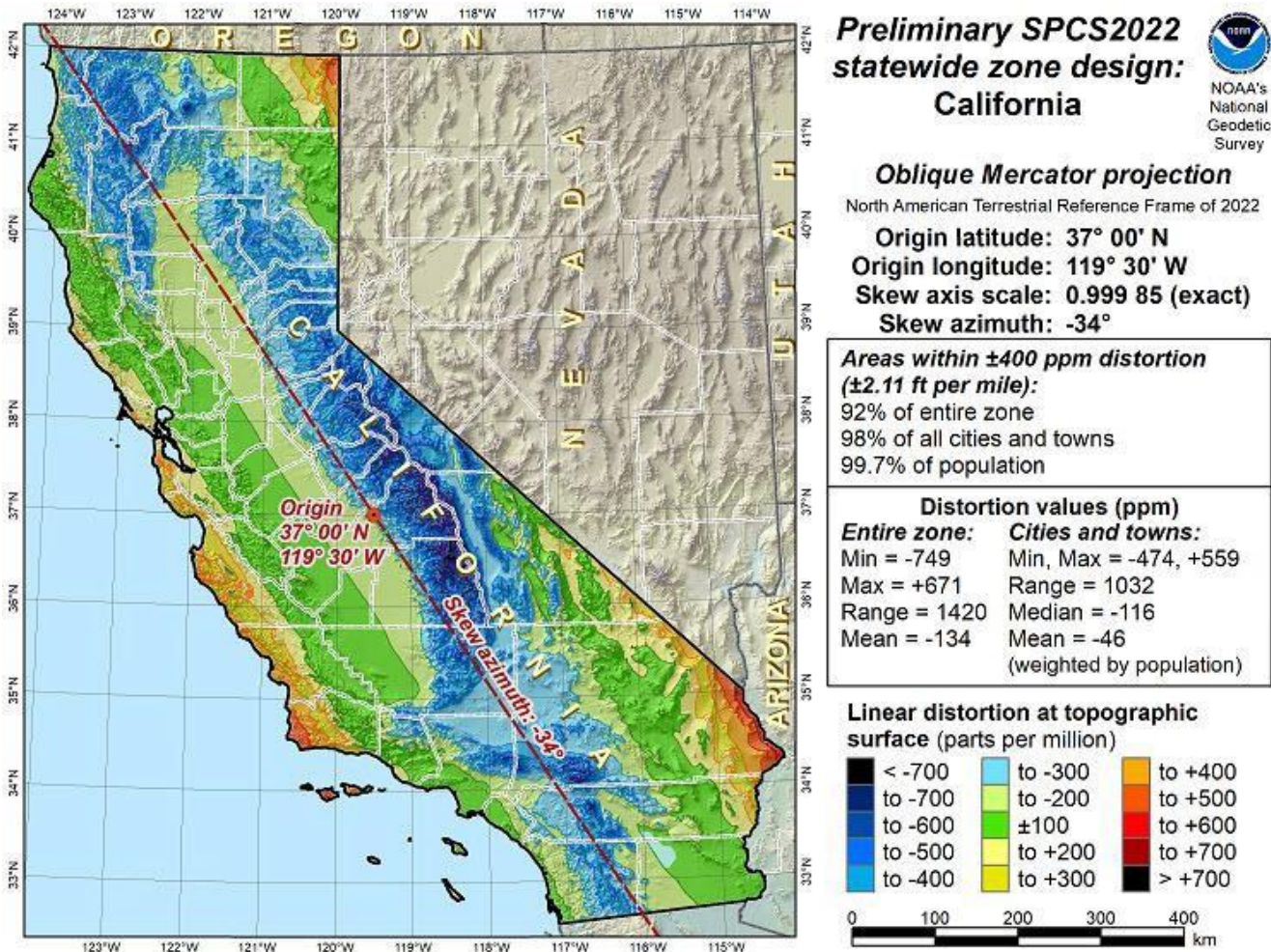
<https://www.ngs.noaa.gov/ADVISORS/index.shtml>

Other key resources can be accessed at these links:

- <https://www.ngs.noaa.gov/datums/newdatums/WatchVideos.shtml>
- <https://www.ngs.noaa.gov/geospatial-summit/index.shtml>
- <https://www.ngs.noaa.gov/GPSonBM/index.shtml>

To stay informed, you can subscribe to the NSRS Modernization News and other notifications:

<https://www.ngs.noaa.gov/INFO/subscribe.shtml>



This document was prepared by Scott P. Martin, PLS - California GIS Council Geodetic Control Work Group Chair  
Version date: June 4, 2020