

California Spatial Reference Center

Geodetic services to ensure an accurate & consistent spatial referencing of information within California

CECIL H. & IDA M. GREEN INSTITUTE OF GEOPHYSICS & PLANETARY PHYSICS – SCRIPPS INSTITUTION OF OCEANOGRAPHY

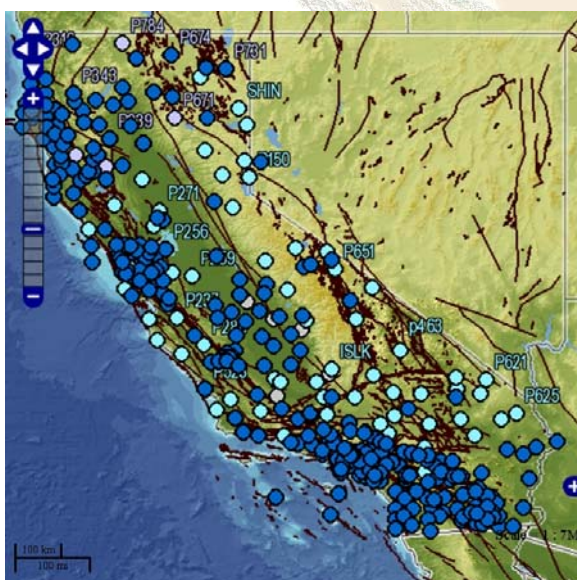


What Does The CSRC Do For You?

- Provides a modern state-wide geodetic control network.
- Establishes and maintains the legal spatial reference system for California.
- Provides a continual statewide CGPS positioning analysis as well as updated positions following significant seismic events.
- Operates the California Real Time Network (CRTN).
- Provides access to state-of-the-art archive, web-based tools and resources for your California GPS projects.

California Real Time Network

CRTN is a multipurpose statewide real-time network that utilizes the existing geophysical GPS infrastructure in California, and provides the backbone (see back of sheet) for the geodetic control network that is outlined in the CSRC Master Plan. It provides accurate and reliable real-time positioning services that are consistent and on a common reference system (California Spatial Reference System (CSRS)) and fulfill the requirements of the California Public Resources Codes 8856(c)(e), 8857(c), and 8858(b) for GPS-derived geodetic coordinates and orthometric heights. CRTN offers multiple real-time data streams to Consortium members as well as free open access RTCM data streams via NTRIP for single-base RTK positioning with respect to the CSRS.



Active CRTN sites shown as blue circles.
All others are planned CRTN sites.

CSRC Funding

Since its inception, the CSRC has been funded mainly from federal sources but also from state, county and local agencies. Federal funding has been drastically reduced in the last three years. The CSRC is at a turning point and is now vigorously seeking additional in-state funding sources. Becoming a CRTN Consortium member is a way for anyone to contribute to ensure the longevity of the CSRC.

Become a CRTN Consortium Member

The CSRC is part of the University of California, San Diego (UCSD) and is required to recover the costs of developing, operating, and maintaining its open and free services, but is not allowed to make a profit. Help support the CSRC by becoming a Consortium member which gives you benefits such as;

- *Multiple Data Streams* – entitles each membership access to real-time data streams from 20 CRTN stations, which can provide any real-time network a tie to the CSRS.
- *Voting Privileges* – Members are part of the team that will oversee the development and management of CRTN.
- *Public Service* – Member fees support free and open access to basic services for all users in California as outlined in the CRTN Proposal.
- *Access to CSRS* – The CSRC is responsible for maintaining the California Spatial Reference System. The changing positions of the stations are continuously updated for tectonic and seismic motions, and velocity models are maintained.
- *Statewide Coverage* – The CRTN backbone network will include about 165 stations with a minimum spacing of 50 km. Current real-time network operators can make use of this statewide spatial referencing backbone to densify their networks as needed.

<http://csrc.ucsd.edu>

Contact: Maria Turingan

(858) 822-2156 or mariaturingan@ucsd.edu

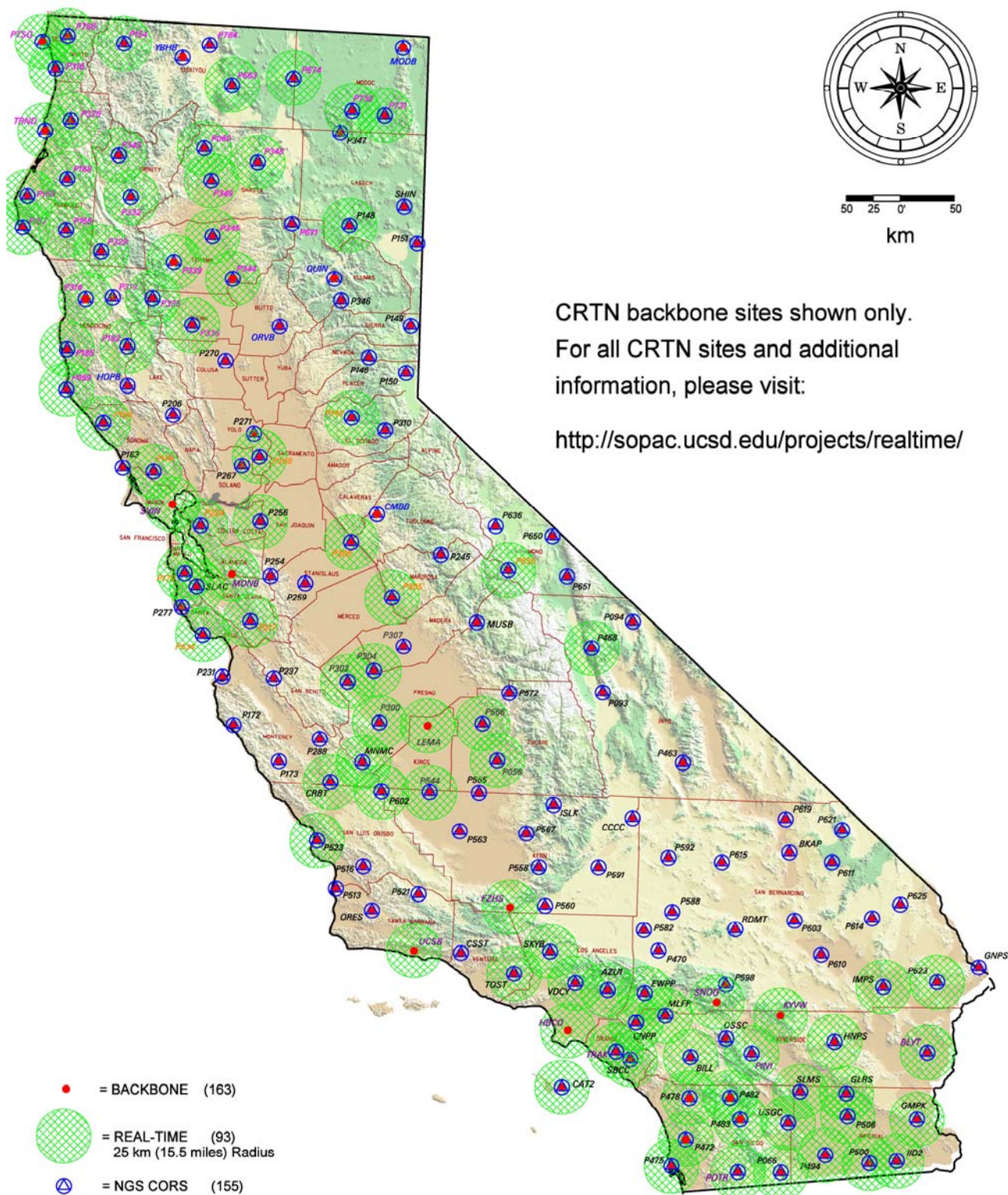
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CSRC - California Real Time Network (CRTN) Proposed Backbone Network





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CRTN Data Policy

- (1) CRTN data streams are now available via NTRIP. Users must have a CRTN user account (NTRIP username and password) and can be requested by emailing Yehuda Bock at ybock@ucsd.edu.
- (2) CRTN has been divided into southern (SC) and northern (NC) sections. The breakdown of stations and relevant information can be found at http://sopac.ucsd.edu/input/realtime/CRTN_Access.xls.
- (3) CRTN RTCM data streams are now available through NTRIP protocol:

For Southern California;

RTCM3.0: IP=132.239.152.74, Port=2103, Mountpoint=XXXX_RTCM3 (e.g., CARH_RTCM3).

For Northern California;

RTCM3.0: IP=132.239.154.101, Port=2103, Mountpoint=XXXX_RTCM3 (e.g., P345_RTCM3).

- (4) Multiple data streams (through IP and port number, not NTRIP), and multiple usernames and passwords (through NTRIP) will be available to CRTN Consortium members including contributing members, and CRTN collaborators.

For current OCRTN sites, please go to: <http://sopac.ucsd.edu/projects/realtime/CRTN/>

CRTN Consortium Membership Tiers:

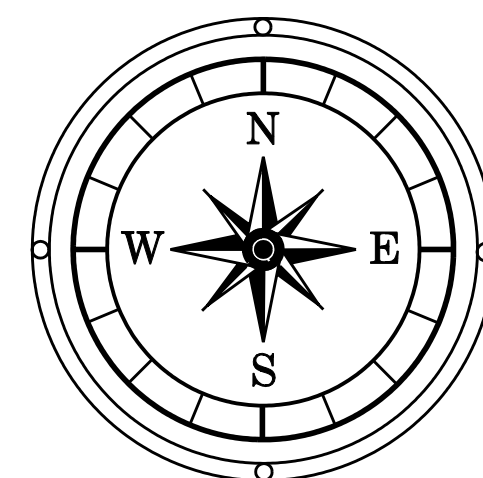
Contributing Members: donate \$1,000 annually, which provides access to a second NTRIP account for real-time access to RTCM 3.0 data (all users have free access to a single account). Additional access increases by \$1,000 per account. Please note that contributing members do not participate in oversight/management of the network.

CRTN Consortium Members: contribute \$15,000 annually, which provides access to any 20 real-time CGPS sites 24/7 (20 NTRIP accounts). This membership has voting privileges on the CRTN Consortium, which oversees the development and management of the network. If a Consortium member needed more than 20 sites, they can add additional sites at \$1000 each.

Statewide CRTN Consortium Members: contributes \$150,000 annually to fund CRTN and has access to all real-time CGPS sites 24/7. This membership has voting privileges but is limited to three voting members, and also includes being part of the team that will oversee the development and management of the network.

Donations for any amount are welcome. All donations are used towards operating and maintaining CRTN and our data services. If you or your organization would like to donate or contribute membership dues, please go to the following link: <https://www-er.ucsd.edu/givetoucscd/secure/paymenttran/onlinegiving.asp?sk=367>."

To receive CRTN updates, please subscribe to the CRTN Forum at <http://troy.ucsd.edu/ubbcgi/ultimatebb.cgi?category=6>




km

CRTN backbone sites shown only.

For all CRTN sites and additional information, please visit:

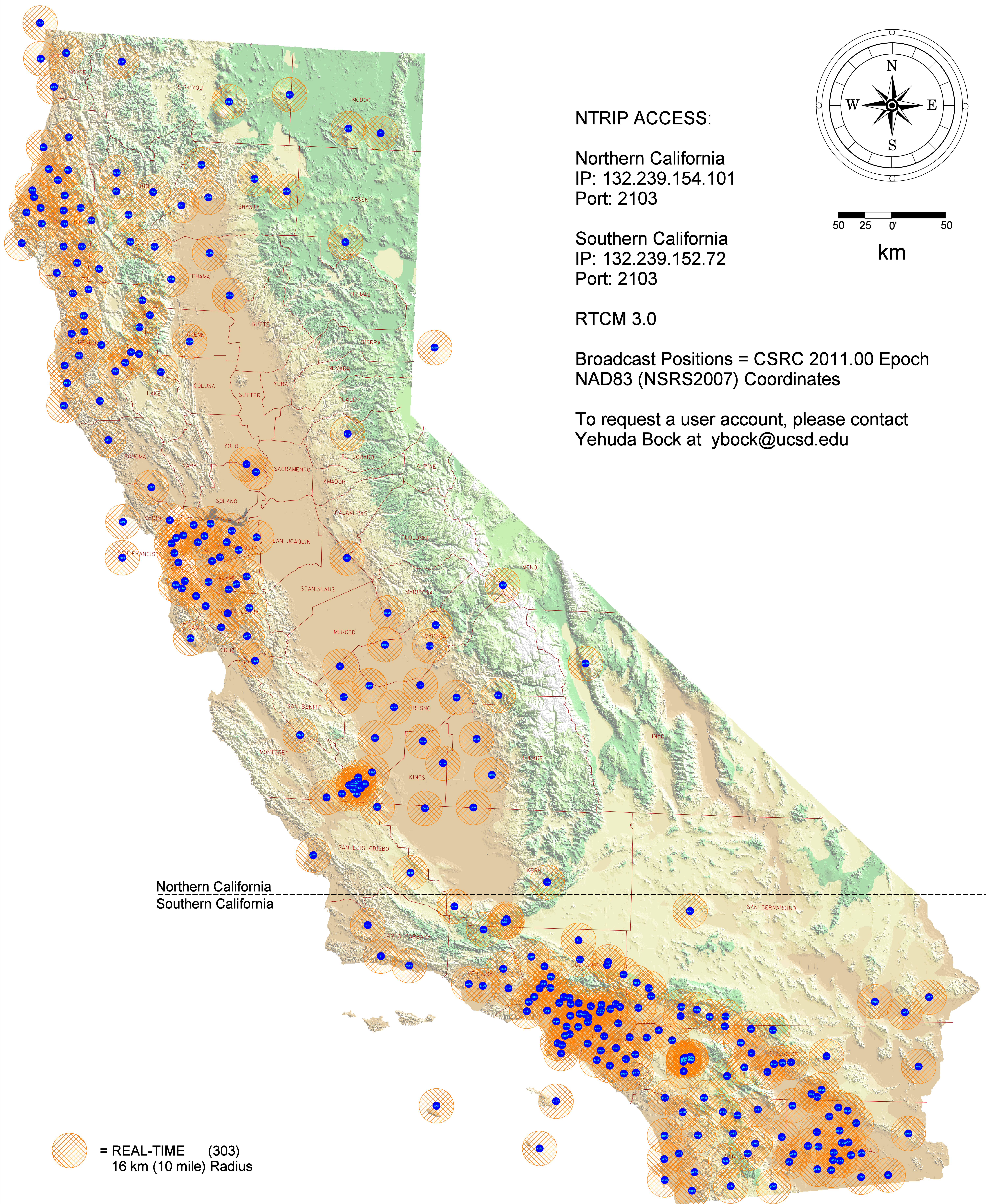
<http://sopac.ucsd.edu/projects/realtime/>

- = BACKBONE (163)

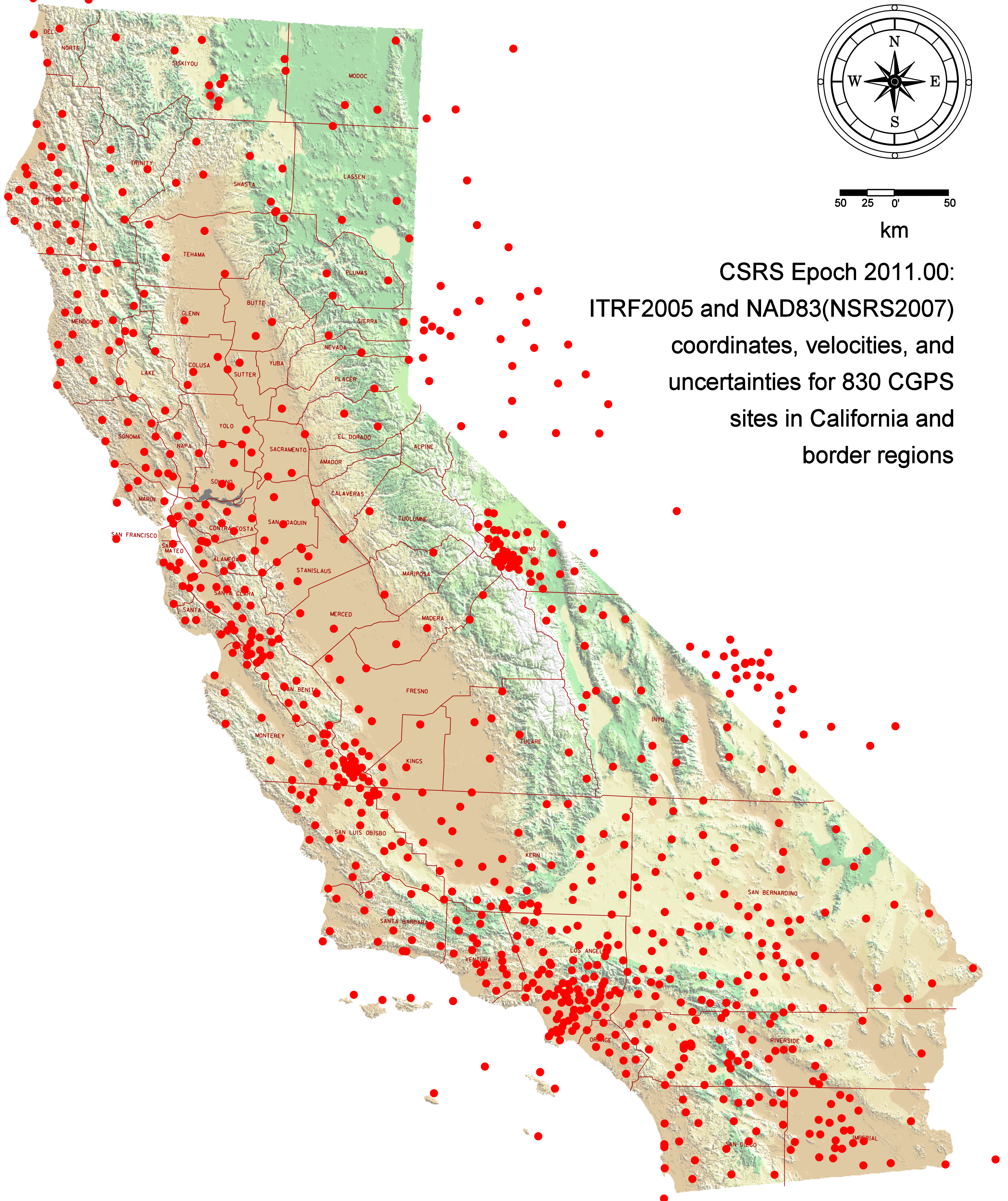
 = REAL-TIME (93)
25 km (15.5 miles) Radius
$$\triangle = \text{NGS CORS} \quad (155)$$



CSRC - California Real Time Network (CRTN)



CSRC - California Spatial Reference Network (CSRN)



CSRS Epoch 2011.00:
ITRF2005 and NAD83(NSRS2007)
coordinates, velocities, and
uncertainties for 830 CGPS
sites in California and
border regions