



The San Diego County Real Time Network (SDCRTN) consists of 19 Continuously Operating Reference Stations (CORS) distributed through-out the county. The measurement data from these CORS along with the North American Datum 1983 (National Spatial Reference System 2007) 2011.00 epoch coordinates of the CORS is made available at no charge to the public. A survey grade Global Positioning System (GPS) receiver and antenna along with a wireless data modem (and service) is all that you need to get started.

### **Surveying:**

The SDCRTN is a cluster of Real Time Kinematic (RTK) base stations with the data from each base station available to the RTK user via a wireless broadband connection. To access a particular base station the user connects to the California Real Time Network (CRTN) server at the Scripps Orbit and Permanent array Center (SOPAC) and the site specific port (for example: to connect to station 'MONP' the modem would connect to 132.239.152.74.8043). For additional details see: [http://sopac.ucsd.edu/input/realtime/CRTN\\_Access.xls](http://sopac.ucsd.edu/input/realtime/CRTN_Access.xls) Once the connection is established and the data is streaming to the ROVER receiver, the ROVER receiver software will combine the base station and rover data, and utilizing the base station coordinates, attempt to solve for a "fixed" solution. The quality of the solution is dependent on the same factors that determine the quality of a traditional RTK solution (baseline length, satellite availability and geometry, atmospheric conditions, multipath, etc.). The RTK receiver specifications should be consulted for more details.

### **Equipment:**

Single frequency receivers will work, however due to the long baselines, dual frequency receivers are recommended. The modem must be able to stream the Radio Technical Commission for Maritime Services (RTCM) data via TCP/IP to the receiver. Verizon and Sprint are providers of mobile broadband within San Diego County. Currently, San Diego County field crews use Leica SR530 receivers with Airlink Raven Code Division Multiple Access (CDMA) modems.

### **Base Station Coordinates:**

The broadcast coordinates for the reference stations are NAD83(NSRS 2007) 2011.00 epoch. The coordinates are broadcast as Latitude, Longitude, and Ellipsoid Height. The reference station coordinates can be found at the California Spatial Resource Center (CSRC).

<http://csrc.ucsd.edu/input/csrs/csrsEpoch2011.00.xls>).

**Port Assignment and Reference Station Coordinates - NAD83 (NSRS2007)  
2011.00 Epoch  
CRTN Server at SOPAC IP: 132.239.152.74**

<b>Site</b>	<b>Port</b>	<b>Location</b>	<b>NAD83(NSRS2007)Epoch2011.00</b>		<b>GRM*</b>
<b>I.D.</b>	<b>RTCM2.3</b>		<b>Latitude</b>	<b>Longitude</b>	<b>Ellipsoid Elev.</b>
			<b>dms</b>	<b>dms</b>	<b>U.S. Feet</b>
desc	8058	Descanso	32 49 47.696296	-116 38 30.426691	3143.161
dsme	8030	Encinitas	33 02 11.307616	-117 14 58.280983	186.577
monp	8043	Laguna Mountains	32 53 30.973420	-116 25 20.413735	6047.606
mvfd	8045	Ranchita	33 12 39.130515	-116 31 31.082881	3906.935
nsss	8062	Chula Vista	32 34 45.523574	-116 58 21.610620	407.967
p066	8059	Jacumba	32 36 59.476470	-116 10 11.189502	2702.230
p472	8040	San Diego	32 53 21.140567	-117 06 16.855072	454.701
p473	8055	Jamacha	32 44 01.581403	-116 56 58.207955	621.120
p474	8056	Fallbrook	33 21 18.681776	-117 14 55.242966	602.508
p478	8057	Valley Center	33 14 08.561254	-117 04 17.678435	1221.502
p480	8041	Vallecito	32 58 33.571863	-116 20 54.680401	1433.027
p482	8048	Warner Springs	33 14 24.632193	-116 40 17.037270	2885.359
p483	8060	Julian	33 03 32.977099	-116 34 09.523774	4515.421
p486	8049	Borrego Springs	33 15 36.675558	-116 19 20.181763	416.781
pmob	8019	Palomar Mountain	33 21 26.051686	-116 51 34.320400	5456.884
potr	8051	Potrero	32 37 06.270324	-116 35 27.060821	2398.381
raap	8027	Ramona	33 02 32.036364	-116 55 02.047102	1298.433
sio5	8021	La Jolla	32 50 26.633491	-117 14 58.835329	611.135
usgc	8018	Ocotillo Wells	33 01 48.216671	-116 05 07.157954	440.288

\* GRM = ground reference monument  
 RTCM2.3 broadcast on 8000 series ports  
 RTCM3.0 broadcast on 6000 series ports  
 Raw data broadcast on 9000 series ports

**Reference Station Coordinates – California Coordinate System 1983  
(NSRS2007) 2011.00 Epoch**

<b>Site</b>	<b>Location</b>	<b>CCS83(NSRS2007)Epoch2011.00</b>		<b>GRM*</b>
<b>I.D.</b>		<b>Northing</b>	<b>Easting</b>	<b>NAVD88 Elev.</b>
		<b>U.S. Feet</b>	<b>U.S. Feet</b>	<b>U.S. Feet</b>
desc	Descanso	1881968.307	6441314.822	3247.72
dsme	Encinitas	1958366.295	6255349.443	299.90
monp	Laguna Mountains	1904352.195	6508763.902	6152.47
mvfd	Ranchita	2020463.309	6477463.351	4011.13
nsss	Chula Vista	1791332.309	6339040.261	521.14
p066	Jacumba	1804108.792	6586370.690	2809.40
p472	San Diego	1904390.029	6299297.483	566.76
p473	Jamacha	1847482.473	6346554.165	732.17
p474	Fallbrook	2074324.663	6256718.790	712.12
p478	Valley Center	2030380.755	6310453.111	1329.47
p480	Vallecito	1934905.983	6531451.909	1539.96
p482	Warner Springs	2031275.694	6432821.079	2989.39
p483	Julian	1965302.146	6463833.058	4619.24
p486	Borrego Springs	2038304.510	6539573.799	524.77
pmob	Palomar Mountain	2074153.148	6375547.365	5560.27
potr	Potrero	1804957.491	6456709.816	2504.91
raap	Ramona	1959647.345	6357195.029	1405.83
sio5	La Jolla	1887149.477	6254619.416	726.12
usgc	Ocotillo Wells	1954604.131	6612139.017	550.80

\* GRM = ground reference monument  
NAVD88 elevations calculated using GEOID09