ACORN FAQ

General Information

IP Addresses: **acorn.uconn.edu** (Recommended)*

137.99.150.56 (Server 1 of 4)
137.99.150.112 (Server 2 of 4)
137.99.150.164 (Server 3 of 4)
137.99.150.165 (Server 4 of 4)

Port #: 2101

*Connecting to ACORN via the acorn.uconn.edu URL is highly recommended as the data collector will be automatically entered into ACORN's "round robin" system which distributes users to 1 of the 4 identical servers for load balancing purposes. Users may also opt to hardwire into a specific server by entering the numeric IP address.

Sensor Map
Green pins represent existing ACORN CORS
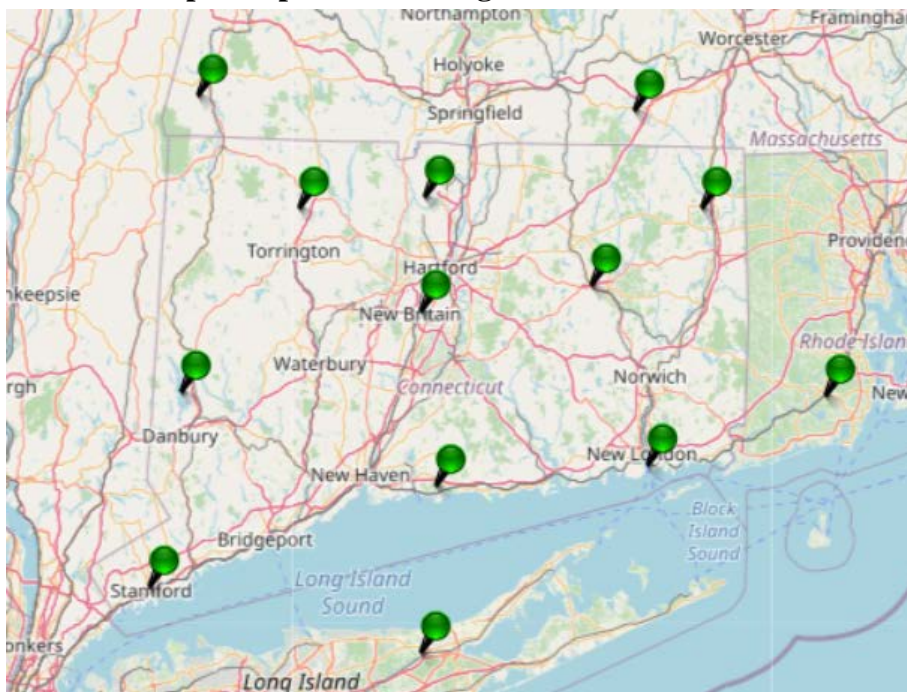
CORS ID	Location
CTBK	Brookfield, CT
CTDA	Darien, CT
CTEG	East Granby, CT
CTGR	Groton, CT
CTGU	Guilford, CT
CTMA	Mansfield, CT
CTNE	Newington, CT
CTPU	Putnam, CT
CTWI	Winchester, CT
MASB	Sturbridge, MA
MASH	Sheffield, MA
NYRH	Riverhead, NY
URIL	Kingston, RI

Detailed station information can be found at
http://www.ngs.noaa.gov/CORS/ by entering the four character station ID.
FAQ document page 3 provides their coordinates.

Mount Types (4)
DGPS
RTO Single Station
RTO Multi Station*
RTO VRS

* Not RTO with multiple bases. This directs ACORN to pick the closest base.

Communication Protocols (3)

Format	Description	Bytes*
RTCM_31	Radio Technical Commission for Maritime Services version 3.1	12,600
CMRP	Compact Measurement Record, also known as CMR+ and CMR plus	12,000
CMRX	Trimble proprietary, uses orbit information to further compress data	**5,500**

* Bytes based upon 1 minute of data, Single Station (no PBS, no VRS residuals), 11 satellites, Position and antenna every 8 epochs (or trickled over 8 epochs with CMR+/CMRx)

OTHER TIPS

- ACORN uses Absolute Phase Center Variations (PCV) – do not mix Absolute and Relative!
- Security Profile: N/A – your security settings connect the receiver to wifi, not to ACORN
- Static observations are supported by ACORN – put it on the tripod and hit the button
- Contact the administrator if you need to change your password. Do not change it on your own in the web interface because the change will only take effect on one of the four servers.
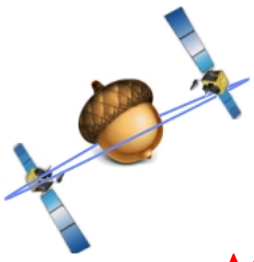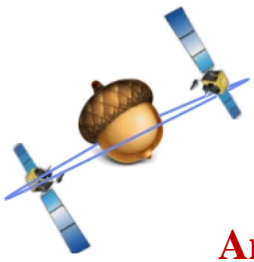
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ACORN Single Base Station Mount Points

Mount Point ID	Base Station	Communication Protocol	Antenna Type
BK3	Brookfield, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 3 TRM115000.00 (no radome)
BKP		CMRP	
BKX		CMRX	
DA3	Darien, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
DAP		CMRP	
DAX		CMRX	
EG3	East Granby, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
EGP		CMRP	
EGX		CMRX	
GR3	Groton, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
GRP		CMRP	
GRX		CMRX	
GU3	Guilford, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
GUP		CMRP	
GUX		CMRX	
MA3	Mansfield, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
MAP		CMRP	
MAX		CMRX	
NE3	Newington, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
NEP		CMRP	
NEX		CMRX	
PU3	Putnam, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
PUP		CMRP	
PUX		CMRX	
NYRH3	Riverhead, NY	RTCM v3.1	Leica LEIAR10 (no radome)
NYRHP		CMRP	
NYRHX		CMRX	
MASB3	Sturbridge, MA	RTCM v3.1	Leica LEIAX1203 + GNSS (no radome)
MASBP		CMRP	
MASBX		CMRX	
MASH3	Sheffield, MA	RTCM v3.1	Leica LEIAX1203 + GNSS (no radome)
MASHP		CMRP	
MASHX		CMRX	
URIL3	Kingston, RI	RTCM v3.1	Trimble GNSS Choke Ring v2 w/SCIS Dome
URILP		CMRP	
URILX		CMRX	
WI3	Winchester, CT	RTCM v3.1	Trimble Zephyr Geodetic Model 2 TRM57971.00 (no radome)
WIP		CMRP	
WIX		CMRX	

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Antenna Reference Point (ARP) Coordinates

ACORN's Default Reference Frame: **NAD 83 (2011)** – Localize your data collector for other coordinate systems or assumed values. Ensure that the latest geoid model is uploaded to the data collector for elevations in NAVD 88: **Geoid 18**
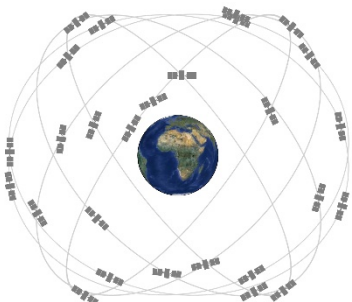
NAD 83 (2011) Position (Epoch 2010.0)

	CTBK	CTDA	CTEG	CTGR	CTGU	CTMA	CTNE	CTPU	CTWI
X (m)	1,365,304.027	1,367,174.638	1,413,426.604	1,478,107.651	1,429,797.588	1,456,379.709	1,417,685.848	1,477,964.654	1,384,616.131
Y (m)	-4,585,218.248	-4,617,636.814	-4,537,671.193	-4,562,614.124	-4,581,509.819	-4,539,030.816	-4,555,729.712	-4,518,936.777	-4,548,662.489
Z (m)	4,204031.536	4,167,931.100	4,239,299.933	4,190,441.883	4,186,611.847	4,223,420.349	4,218,615.608	4,237,355.691	4,237,285.506
Lat (N)	41° 29' 52"46403	41° 03' 57"06981	41° 55' 24"34707	41° 20' 07"03560	41° 17' 21"74225	41° 43' 52"91739	41° 40' 24"71724	41° 53' 58"88849	41° 53' 51"90742
Long (W)	073° 25' 06"47516	073° 30' 25"94223	072° 41' 55"88073	072° 02' 58"96923	072° 40' 04"44440	072° 12' 38"87706	072° 42' 52"25236	071° 53' 20"88962	073° 04' 10"96812
Height (m)	50.418	-13.270	30.287	-18.342	-18.119	55.165	41.749	57.115	192.088

NAD 83 (2011) Velocity (m/yr)

	CTBK	CTDA	CTEG	CTGR	CTGU	CTMA	CTNE	CTPU	CTWI
VX	0.0018	0.0015	0.0019	0.0016	0.0016	0.0019	0.0015	0.0018	0.0017
VY	-0.0000	0.0009	0.0002	0.0008	0.0006	0.0003	0.0006	0.0002	0.0002
VZ	-0.0020	-0.0024	-0.0016	-0.0020	-0.0018	-0.0019	-0.0020	-0.0017	-0.0022
Northward	-0.0018	-0.0015	-0.0014	-0.0013	-0.0013	-0.0016	-0.0014	-0.0015	-0.0018
Eastward	0.0017	0.0017	0.0019	0.0018	0.0017	0.0019	0.0016	0.0018	0.0017
Upward	0.0009	-0.0019	-0.0008	-0.0015	-0.0013	-0.0010	-0.0014	-0.0009	-0.0012

Space Segment

Control Segment

★ Master Control Station   ☆ Alternate Master Control Station
▲ Ground Antenna   △ AFSCN Remote Tracking Station
● Air Force Monitor Station   ● NGA Monitor Station
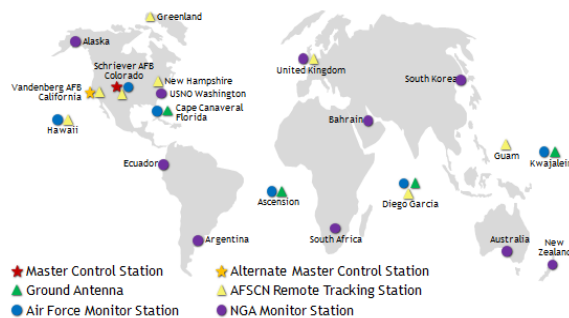
User Segment
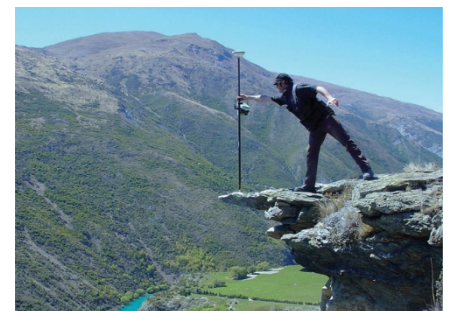
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ALOHA (A List of Helpful Acronyms)

CMR	Compact Measurement Record	PPE	Post-Processing Engine
CORS	Continuously Operating Reference Station	RDA	Raw Data Analysis
DAT	Data File Type	RDS	Radio Data System
DCB	Differential Code Bias	RINEX	Receiver Independent Exchange Format
DGPS	Differential GPS	RTCM	Radio Technical Commission for Maritime Services
DW	Disk Watch	RTK	Real-Time Kinematic
GLONASS	Global Navigation Satellite System (in Russian)	RTO	Real-Time Output
GNSS	Global Navigation Satellite System	SNR	Signal-to-Noise Ratio
GPS	Global Positioning System	SP3	Standard Product #3 (by NGS)
HTML	HyperText Markup Language	SQL	Search and Query Language
HTTP	Hyper Text Transfer Protocol	TAC	Trimble Accounting
HTTPS	Hyper Text Transfer Protocol Secure	TEC	Total Electron Count
IGS	International Geodetic Survey	TIM	Trimble Integrity Monitoring
IP	Internet Protocol	TMC	Trimble Mobile Communication
IPV	Internet Protocol Version	TNC	Trimble Ntrip Caster
IPWV	Integrated Precipitable Water Vapor	TNP	Trimble Network Processor
JPL	Jet Propulsion Laboratory	TPP	Trimble Pivot Platform
KML	Keyhole Markup Language	TPPDB	Trimble Pivot Platform DataBase
NGS	National Geodetic Survey	TSA	Trimble Service Administrator
NMEA	National Maritime and Electronics Association	TSC	Trimble Survey Controller
NPR	Network Processor	URL	Uniform Resource Locator
NTRIP	Networked Transport of RTCM via Internet Protocol	VPN	Virtual Private Network
ORB	Orbit File Type	VRS	Virtual Reference Station
PIVOT	Progressive Infrastructure Via Overlaid Technology	XML	EXtensible Markup Language
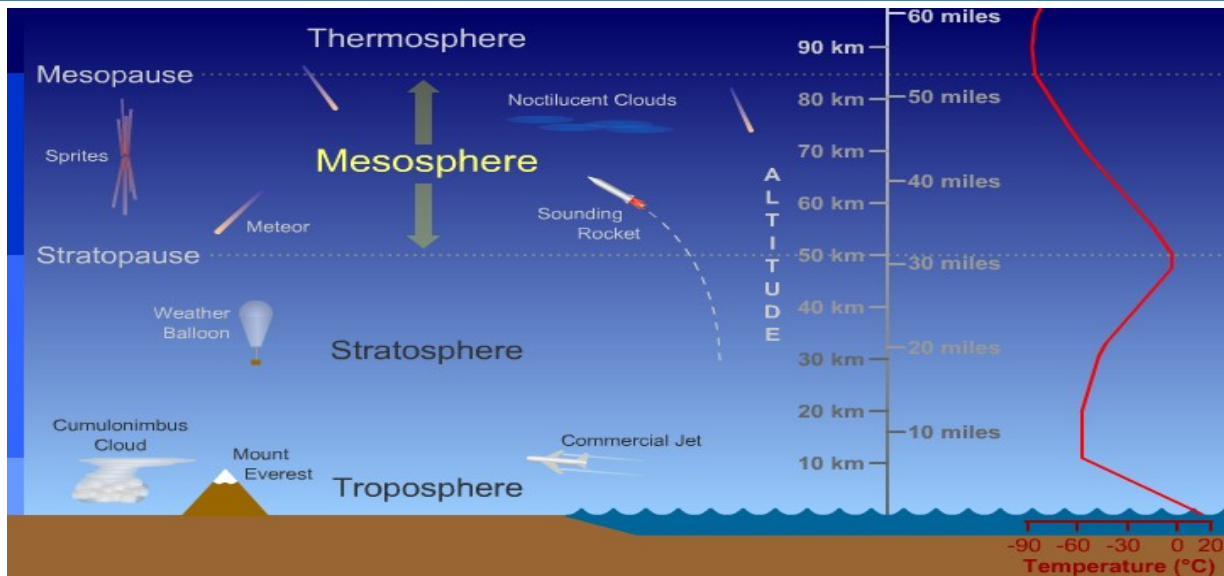
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Frequently Asked Questions

What is ACORN?

Connecticut's Advanced Continuously Operating Reference Network is the product of a joint research project by UConn and CTDOT. The purpose was to implement a real-time network for the Connecticut Department of Transportation's Digital Design Environment.

Is there a fee to use ACORN?

No. ACORN is currently free and open to the public.

How do I register for a new account?

From a web browser, visit http://acorn.uconn.edu/ and click on the Register link in the table of contents on the left side of the page. Enter your personal data, Organization, User Name, and Password. The administrator will receive notice of your registration and processes the account creation shortly afterward. If your organization already has an ACORN account, use the same organization name to keep the accounts associated.

Does my account expire? Do my subscriptions expire?

No. Your account will remain active, and your subscriptions will be renewed annually unless you want to cancel them.

How do I change my password?

Contact the ACORN administrator at kevin.franklin@uconn.edu to change your password. If you change your password on your own on the web interface, the change will only take effect on the 1 server that the URL happens to route you to. ACORN runs on 4 servers for redundancy, so that will ultimately create a credentials issue.

Can I log in with 2 devices at the same time?

No, by default, but just ask if you need to add RTK logins. Otherwise, ACORN is configured to disallow multiple simultaneous logins from the same account. To add RTK logins associated with your user account, send the ACORN administrator an email.

Why are my elevations off by about 100 feet?

In CT, 100 feet (30 meters) is roughly the separation between the respective surfaces of the ellipsoid and the geoid. GPS uses ellipsoid heights, so a geoid model is needed to transform to an orthometric height such as NAVD 88. If you recently purchased a new data collector or performed a hard reset, you might need to upload a geoid model that covers your project area and link it in the job settings.

Why do my XYZ positions have a spatial offset of about 6 feet (2m)?

2 meters is roughly the difference between the origins of the NAD 83 and WGS 84 systems. You might have an option on your device to transform between NAD 83 and WGS 84. ACORN's reference frame is NAD 83.