Cal Poly Earth Station

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Two Earth Stations

•The Cal Poly Earth Station is a general use earth station

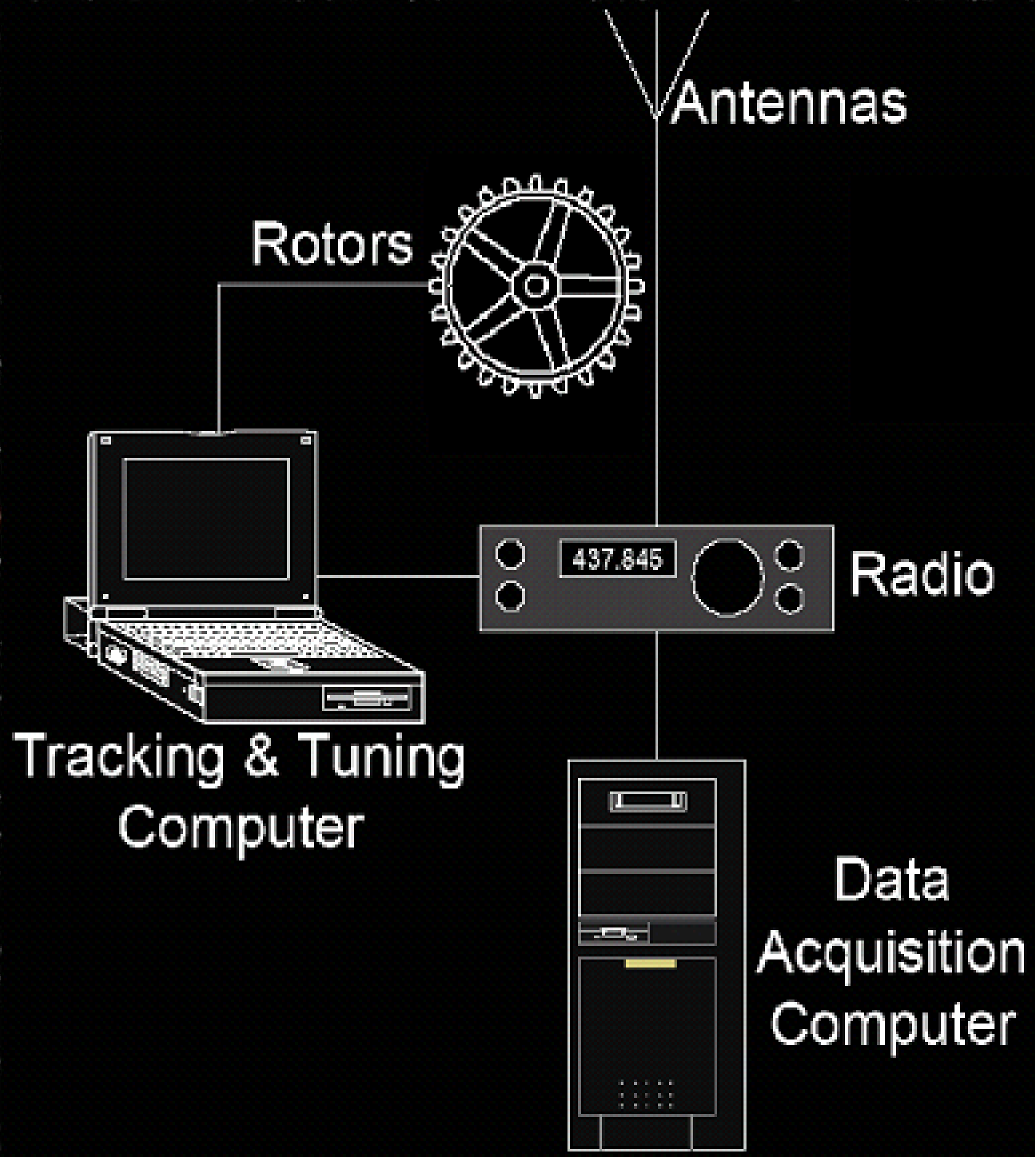
•We regularly talk on other Amateur Satellites, and have successfully decoded 1200 and 9600 baud data

•Over 15 licensed amateurs are active in PolySat and CubeSat

•Students, mentors, and other local amateurs have helped to build and maintain the earth station

•We are looking alternate modes and different frequencies for future satellites

A Typical Earth Station



Two Earth Stations

- Two earth stations will be needed to support the two satellites
- Either station can communicate with either satellite
- The two stations are mirrors of each other, except the transceiver and antenna

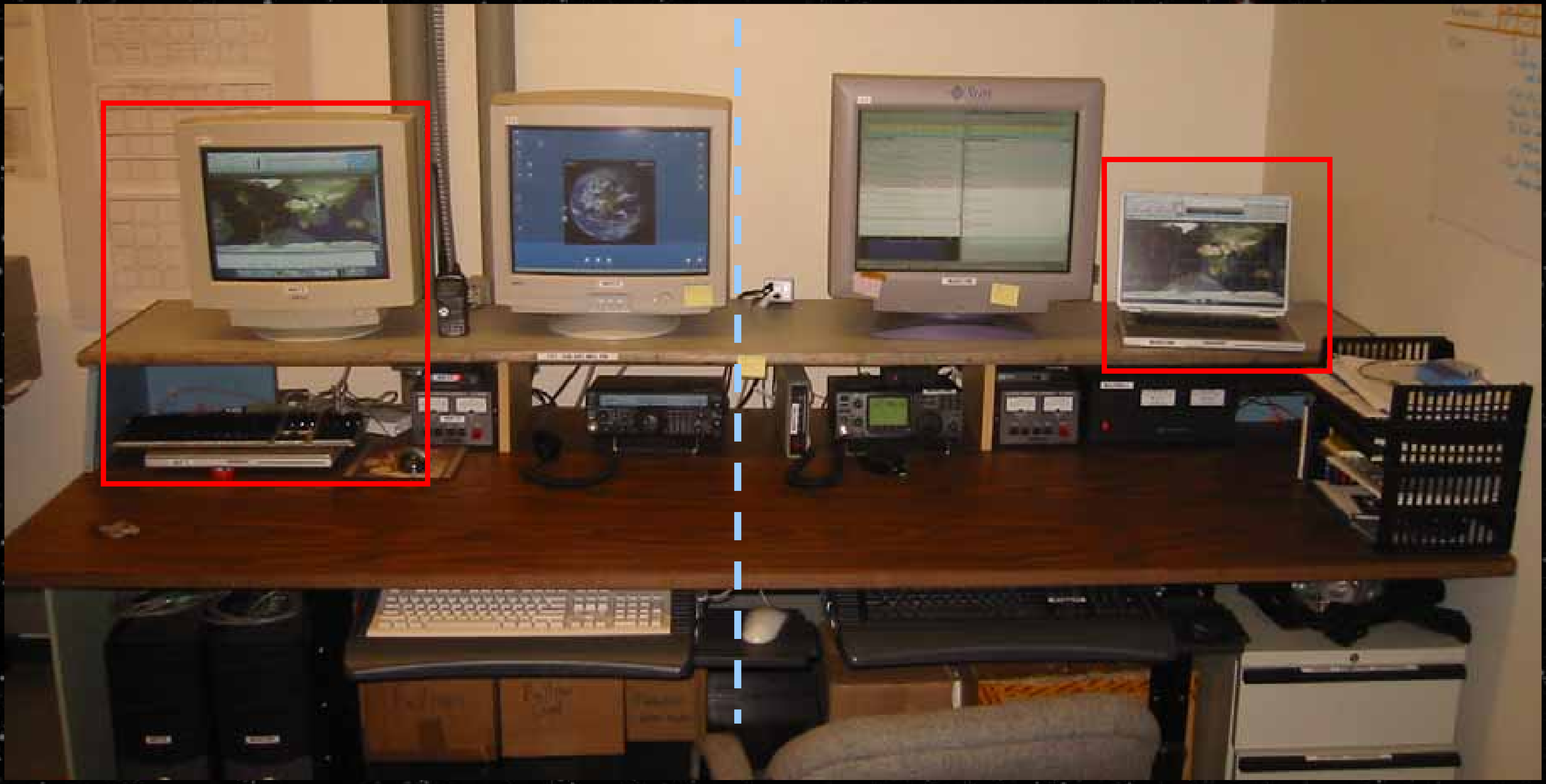
Transceivers

- Yeasu FT-847 and Icom IC-910
- 50 Watts output power
- Fully Doppler shift controlled

Rotors

- Yeasu G-5500
- Full azimuth and elevation
- Computer controlled via MacDoppler Pro

Frequency and Rotor Control

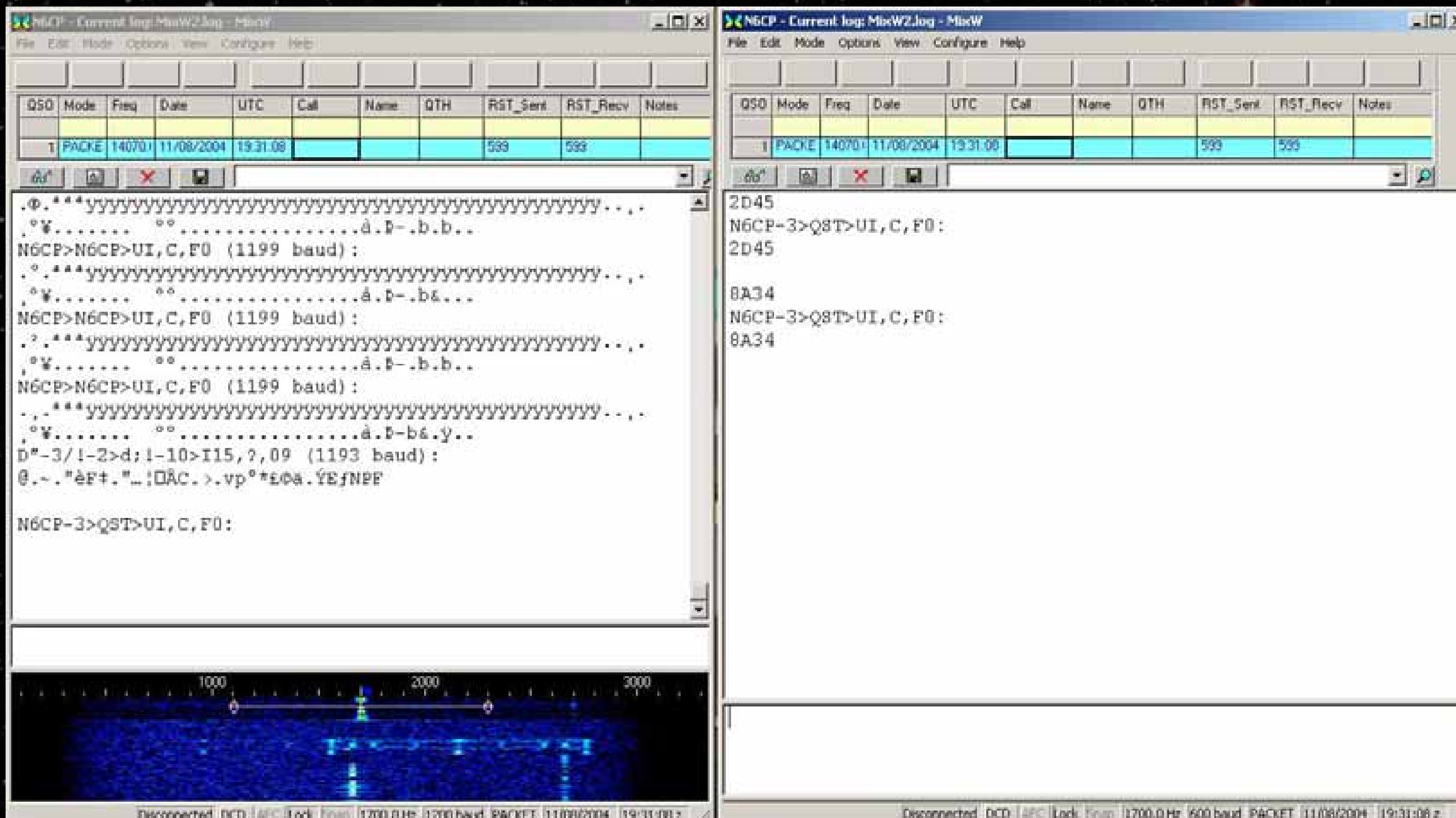


•MacDoppler Pro is used on Macintoshes to control the rotor movement and tune the radios for Doppler shift
•Very reliable and easy to use

Data Acquisition

- Software TNCs are used to decode the AX.25 packets
- The data will be decoded and stored on the computers, and audio files will be recorded as well
- These computers will also be used to command the satellite

Data Acquisition



- We use MixW2, a software TNC, to decode the transmitted data
- The modulation scheme is 1200 baud FSK AX.25 with a CW beacon
- A small software program will be written to display the decoded information in an orderly manner

Antennas

- 437MHz yagi
- 14 dB gain
- 10 feet long
- 30 ° beamwidth

- 437MHz yagi
- 16 dB gain
- 20 feet long
- 21° beamwidth