The Sun-Earth Connection Education Forum (SECEF) and the Radio JOVE Project

Jim Thieman
NASA/GSFC
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What is SECEF?

Goal: Make connections within the Sun- Earth Connection (SEC) Science Community to focus attention on the active Sun and its effects on Earth within the Formal and Informal Education Communities as well as the general public.

- Develop partnerships with Scientists, Museums, Educators
- Provide rich expertise from the science community through the sharing of the interrelated story of science missions
- With the guidance of educators, develop programs that match audience needs to promote the regular use of SEC science
- Develop exciting programs that capture the interest of the general public via Museums and Science Centers

Programs


Sun-Earth Day
Spring Equinox
Sun-Earth Connection Education Forum
http://sunearthday.nasa.gov

NASA CONNECT
Math
Science
Technology


Student Observation Network
Tracking a Solar Storm
How can we predict solar storms to protect satellites and astronauts?
Winter's Story
How can falling snow, snowpacks, and ice cores help us decode climate and climate change?
Multiwavelength Milky Way
Where are we in the Universe?


Eye on the Sky


Challenger
CENTER


Girl Scouts


NATIONAL PARK SERVICE
Earth to Sky

National Aeronautics and Space Administration
Goddard Space Flight Center

› Visit NASA.gov
› Visit Sun-Earth Day

HOME | GETTING STARTED | FOR EDUCATORS | SPACE WEATHER DATA

Sun-Earth day presents:

Space Weather Action Center

SUNSPOT REGIONS

- H-Alpha Full Disk Image of the Sun: (Live Data) - (Tutorial)
- MDI with numbers: (Live Data) - (Tutorial)
- MDI Magnetogram: (Live Data) - (Tutorial)
- Extreme Ultraviolet Image: (Live Data) - (Tutorial)
- Large Angle and Spectrometric Coronagraph (LASCO): (Live Data) - (Tutorial)

Additional Data

- Global High-Resolution Network: (Live Data) - (Tutorial)
- Active Region Monitor: (Live Data) - (Tutorial)
- SOHO Home: (Live Data) - (Tutorial)
- Latest MDI Continuum: (Live Data)

STORM SIGNALS

- University of Florida Radio Observatory: (Live Data) - (Tutorial)
- GOES X-ray Flux (5 min data): (Live Data) - (Tutorial)

Additional Data

- RadioJove Archives: (Live Data) - (Tutorial)
- Wind Waves: (Live Data) - (Tutorial)
- Latest Events: (Live Data) - (Tutorial)
- SOHO CME Archives: (Live Data) - (Tutorial)
- Latest Events Archive: (Live Data) - (Tutorial)
- GOES movies: (Live Data)
- RHESSI Light Curves: (Live Data)
- RHESSI Spectrograms: (Live Data)
- RHESSI Images: (Live Data)

MAGNETOSPHERE

- Kp Index (Estimated Planetary K-index): (Live Data) - (Tutorial)
- Magnetosphere Graph: (Live Data) - (Tutorial)

Additional Data

- Tromso, Norway: (Live Data) - (Tutorial)
- Alaska: (Live Data) - (Tutorial)
- Tixie Bay, Russia: (Live Data) - (Tutorial)
- ACE Bz Archive: (Live Data) - (Tutorial)
- ACE Solar Wind Archive: (Live Data) - (Tutorial)
- More ACE: (Live Data)
- GOES Satellites: (Live Data)

AURORAS

- Auroral Activity on Earth - NOAA POES: (Live Data) - (Tutorial)
- Kiruna All-Sky camera: (Live Data) - (Tutorial)

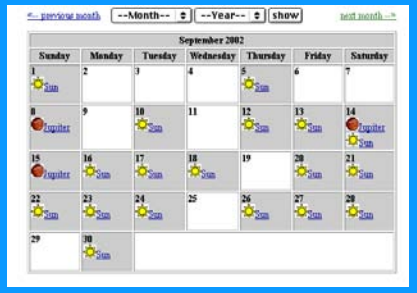
Additional Data

- The Aurora Today – Ground View From Alaska: (Live Data)
- Poker Flat Allsky Camera: (Live Data)
- SGO: Real-time Data: All-Sky Cameras: (Live Data)
- Polar Satellite: (Live Data)
- Polar VIS: (Live Data)
- TIMED GUVI: (Live Data)
- IMAGE FUV Archive: (Live Data)

RADIO JOVE PROJECT

The Radio JOVE Project is a hands-on educational activity teaching the scientific method through doing radio astronomy. Students can:

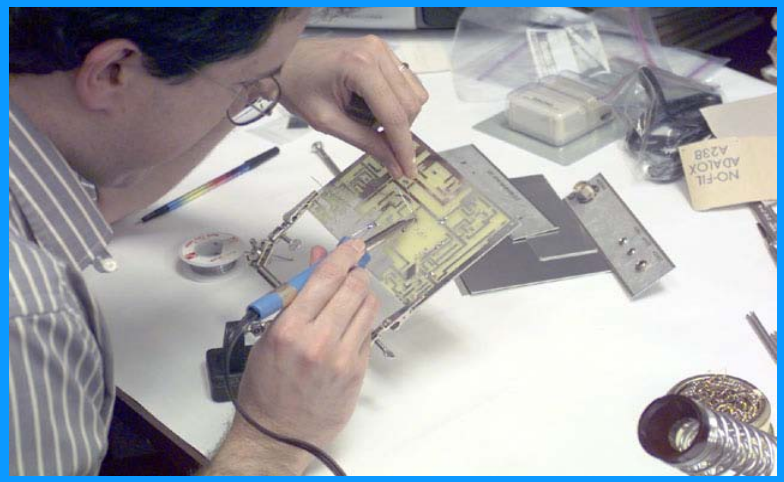
- Build a radio telescope from an inexpensive kit, make observations of Jupiter or the Sun, and contribute to a central pool of data used for collaborative research
  (kits are $190 + shipping)

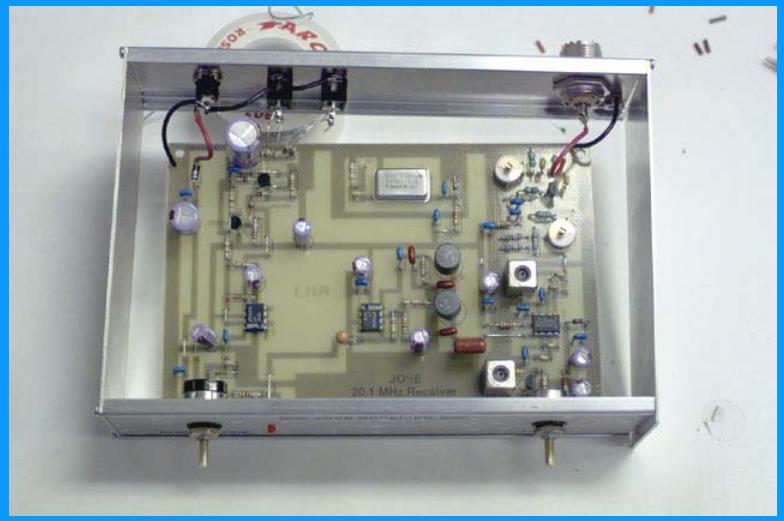


- Use remote radio telescopes through the web to observe and learn radio astronomy

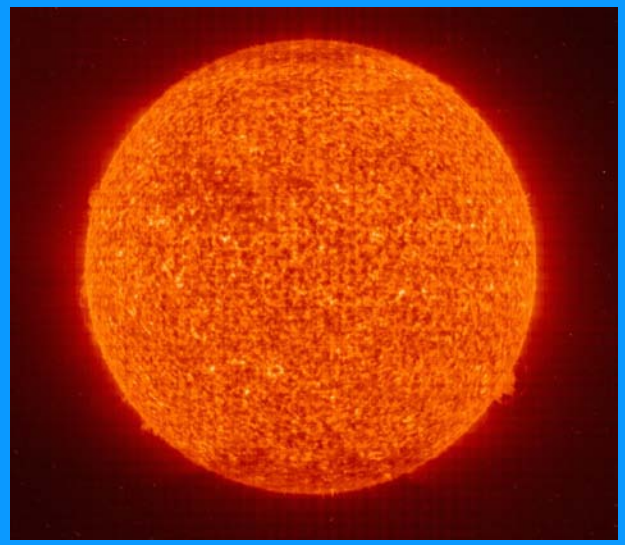
Detailed information available at: http://radiojove.gsfc.nasa.gov

RADIO JOVE CONSTRUCTION

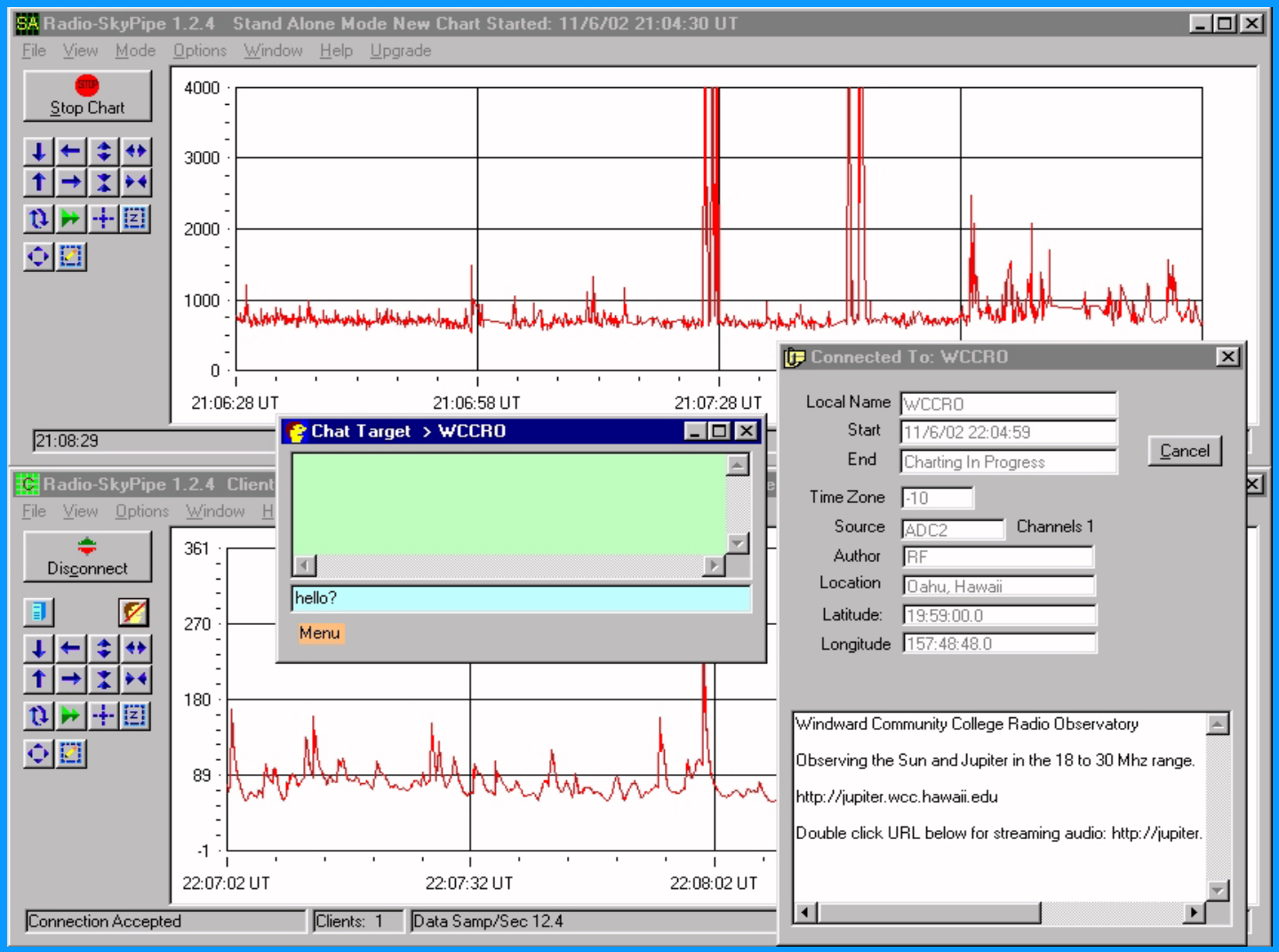




RADIO SOURCES AT 20 MHz

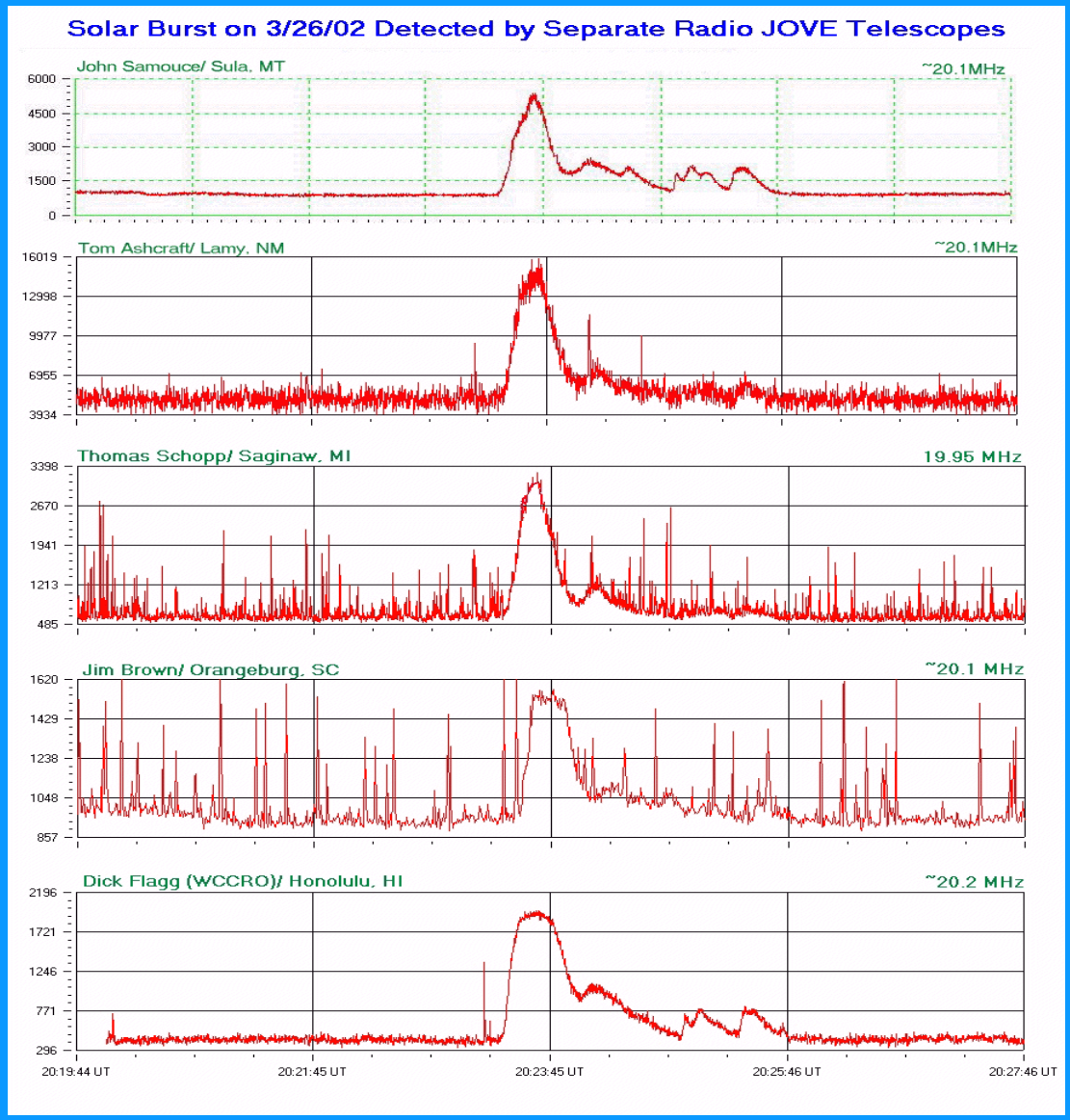


RADIO SKYPIPE SOFTWARE

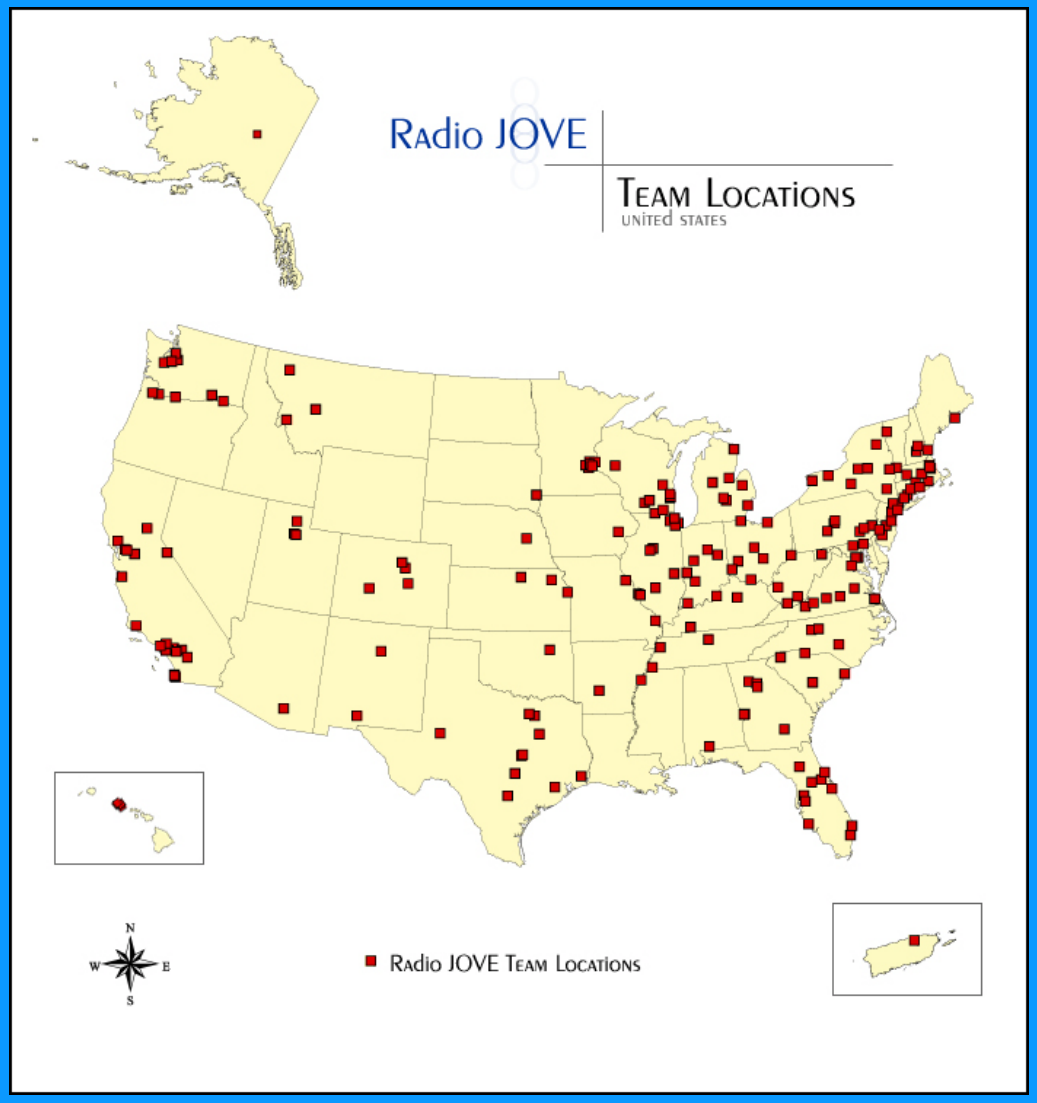


http://radiosky.com

SIMULTANEOUS OBSERVATIONS
Sun



Radio JOVE Status



- Startup 11 years ago through NASA DDF funding
- Nearly 1200 kits distributed to almost all states and 64 countries
- Several online professional telescope facilities
- Periodic coordinated observing
- Many workshops and presentations for teachers
- Now self-sustaining

COUNTRIES WITH REGISTERED OBSERVERS

Argentina	3
Australia	28
Austria	1
Bahrain	2
Basque Country	1
Belgium	2
Brazil	13
Brunei	1
Bulgaria	1
Canada	20
Chile	3
China	3
Colombia	11
Croatia	1
Cyprus	1
Czechoslovakia	2
Denmark	1
Dominican Republic	1
Finland	1
France	14
Germany	13
Greece	1
Guyana	1
Honduras	1
Hungary	1
India	52
Indonesia	2
Iran	9
Iraq	1
Ireland	5
Israel	3
Italy	18

Japan	1
Korea	1
Malaysia	6
Malta	1
Mexico	10
Netherlands	3
New Zealand	7
Nigeria	6
Pakistan	2
Paraguay	1
Peru	1
Philippines	2
Portugal	2
Romania	4
Scotland	1
Singapore	6
Slovenia	1
South Africa	3
Spain	14
Sri Lanka	2
Sweden	1
Switzerland	2
Taiwan	3
Tanzania	1
Thailand	1
Trinidad and Tobago	1
Turkey	2
United Arab Emirates	1
United Kingdom	30
Venezuela	4
Virgin Islands	2
West Indies	1

BACKGROUND

Abstract

The Sun-Earth Connection Education Forum (SECEF) and the Radio JOVE project are two examples of NASA-supported programs that provide hands-on educational opportunities for students to learn science by inquiry-based interactive learning. In SECEF there is a project called Space Weather Action Center where student use actual NASA satellite data to study the Sun and the near-Earth space environment to predict solar storms and their effects on Earth.

For Radio JOVE the students build a radio telescope from a kit and use it to monitor the Sun or other radio sources to know when radio storms have occurred. Through these projects students follow the scientific process to reach conclusions that are then "published" or communicated to others.