APOLLO

4

YEARS

"ECHOES OF APOLLO"

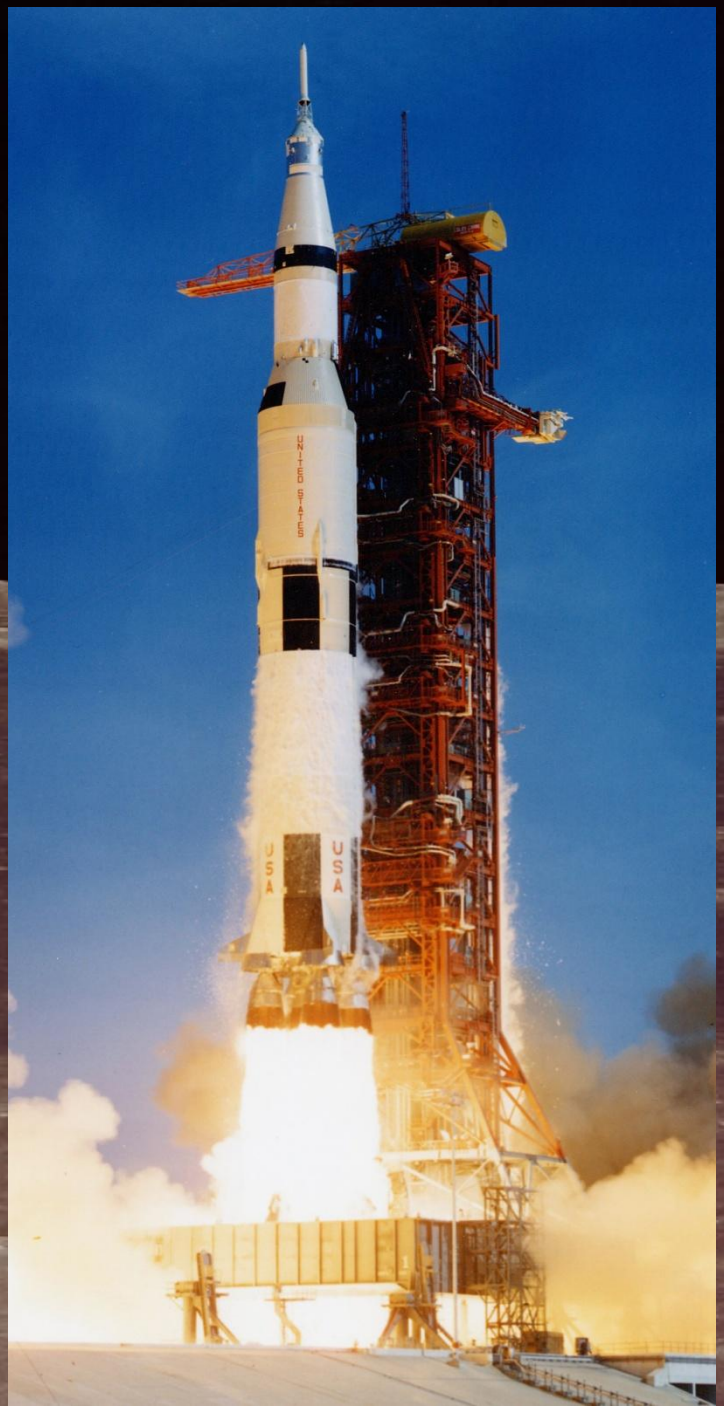
A 40th Year Anniversary of the Apollo 11 Moon Landing

Presented to Clovis Amateur Radio Club

Dave Smith W6TE

August 7, 2009

9 Years later…



3 Days later…

Present Time --- Echoes of Apollo

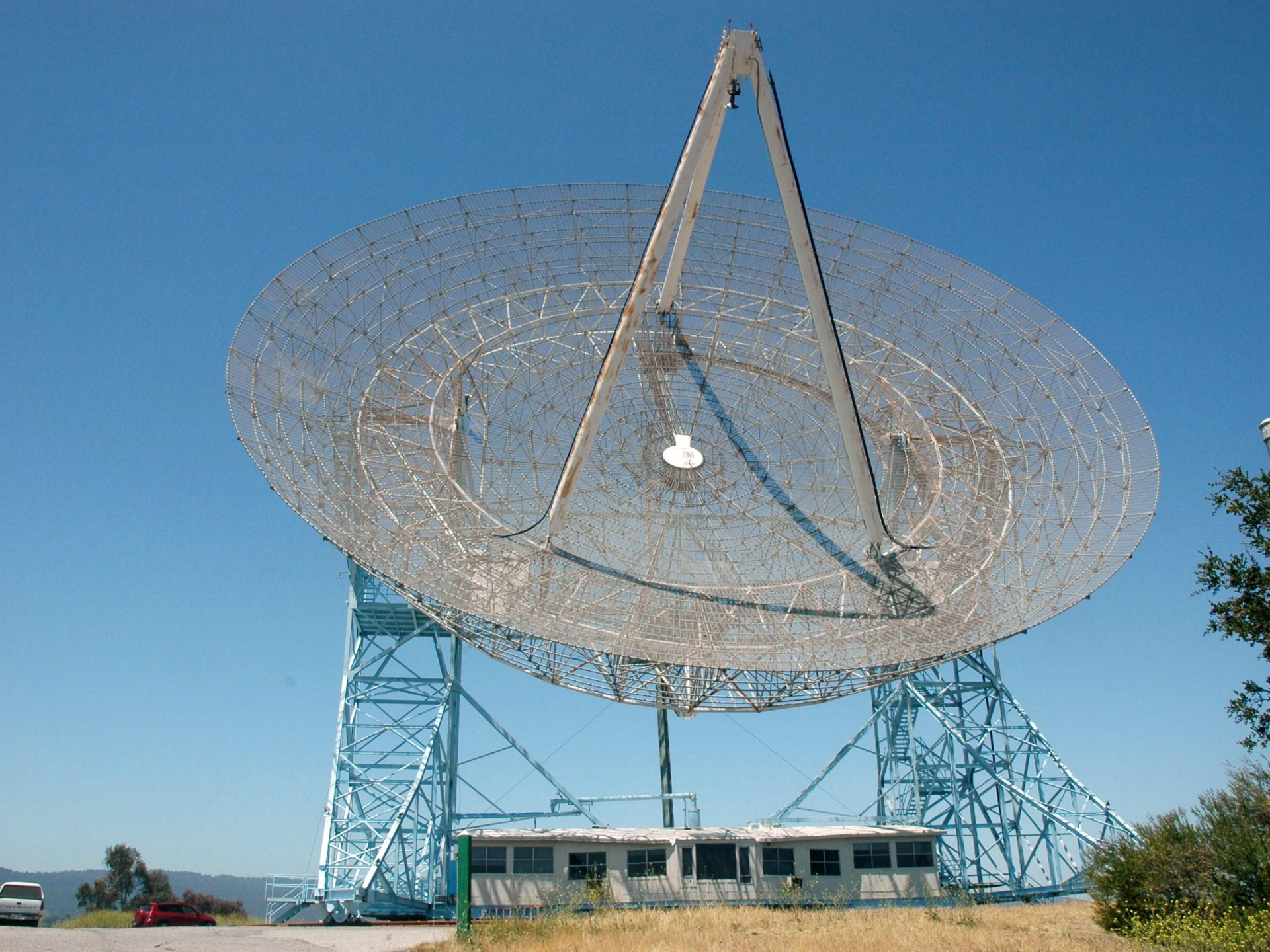
Celebrating Apollo Missions on the 40th Anniversary of Man's Moon Landing, July 20th 1969. You are invited to the world's biggest space party....ever!


SRI
International
Main Entrance
Building A
333 Ravenswood Avenue

THE PITCH

Initial meeting with SRI's management

Dr. Michael Cousins, Director of the Stanford Dish discussing some of the finer points of the dish with Dave Smith, W6TE. (March 2009)

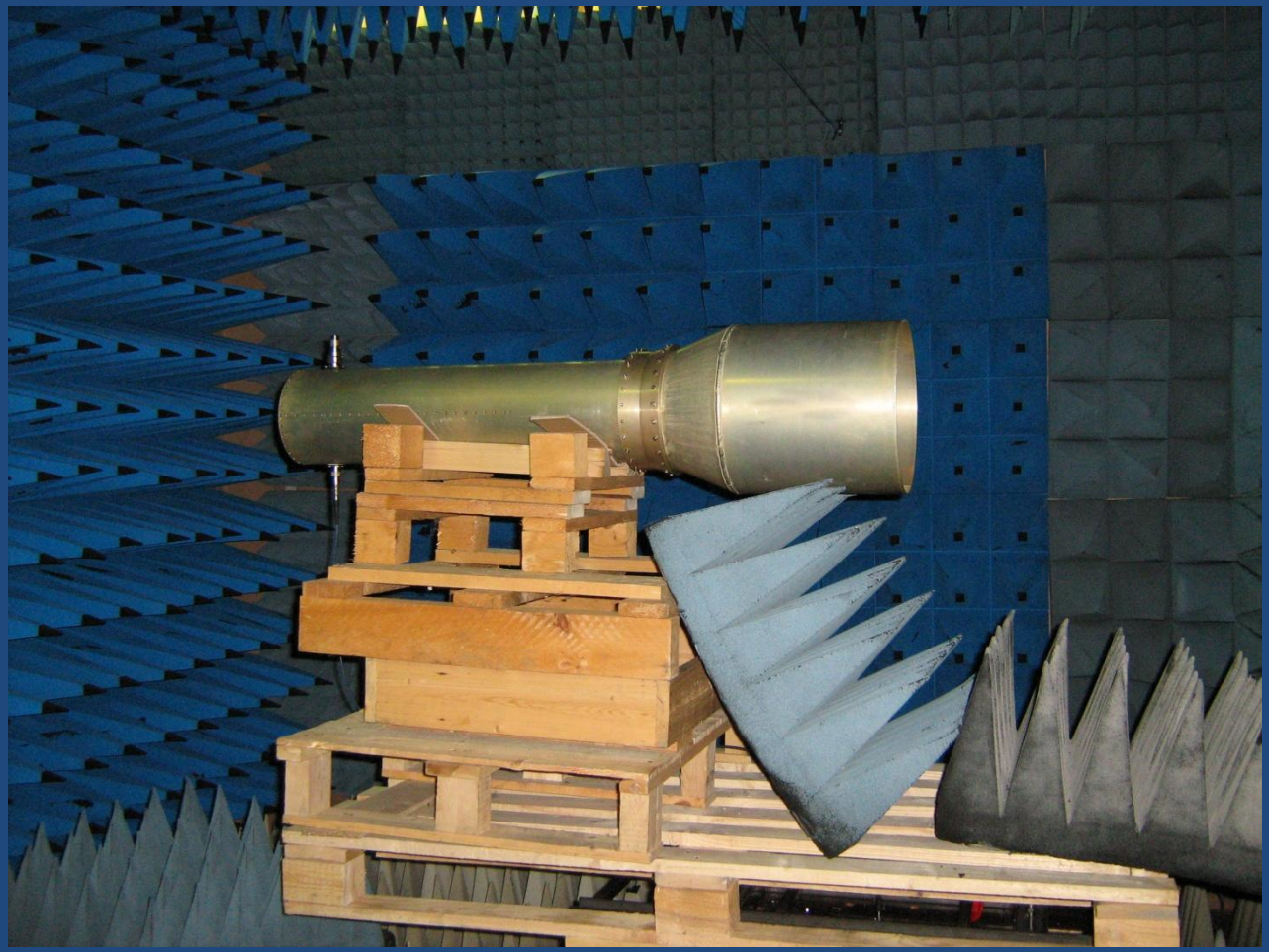


Big Dish's computer console

Major Obstacles To Overcome

- Obtain a feed horn which can produce circular polarization for 1296 MHz. (23 cm)
- Preamplifier must be mounted at the feed.
  - Protection of the preamp through sequencing.
- Developing as much Tx power as possible at the feed

OM2AA, Rasto's, Septum Feed Chek Replubic

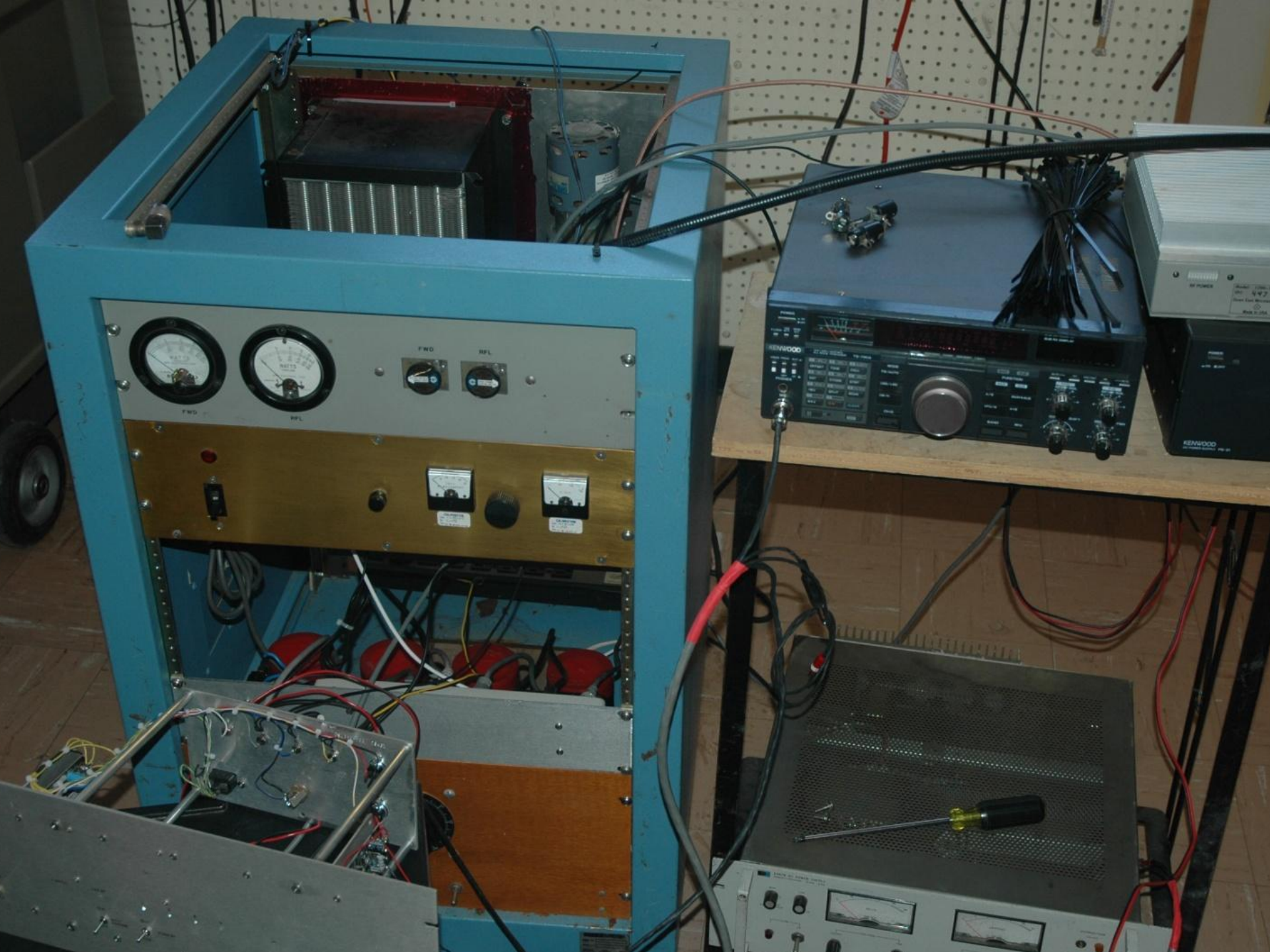


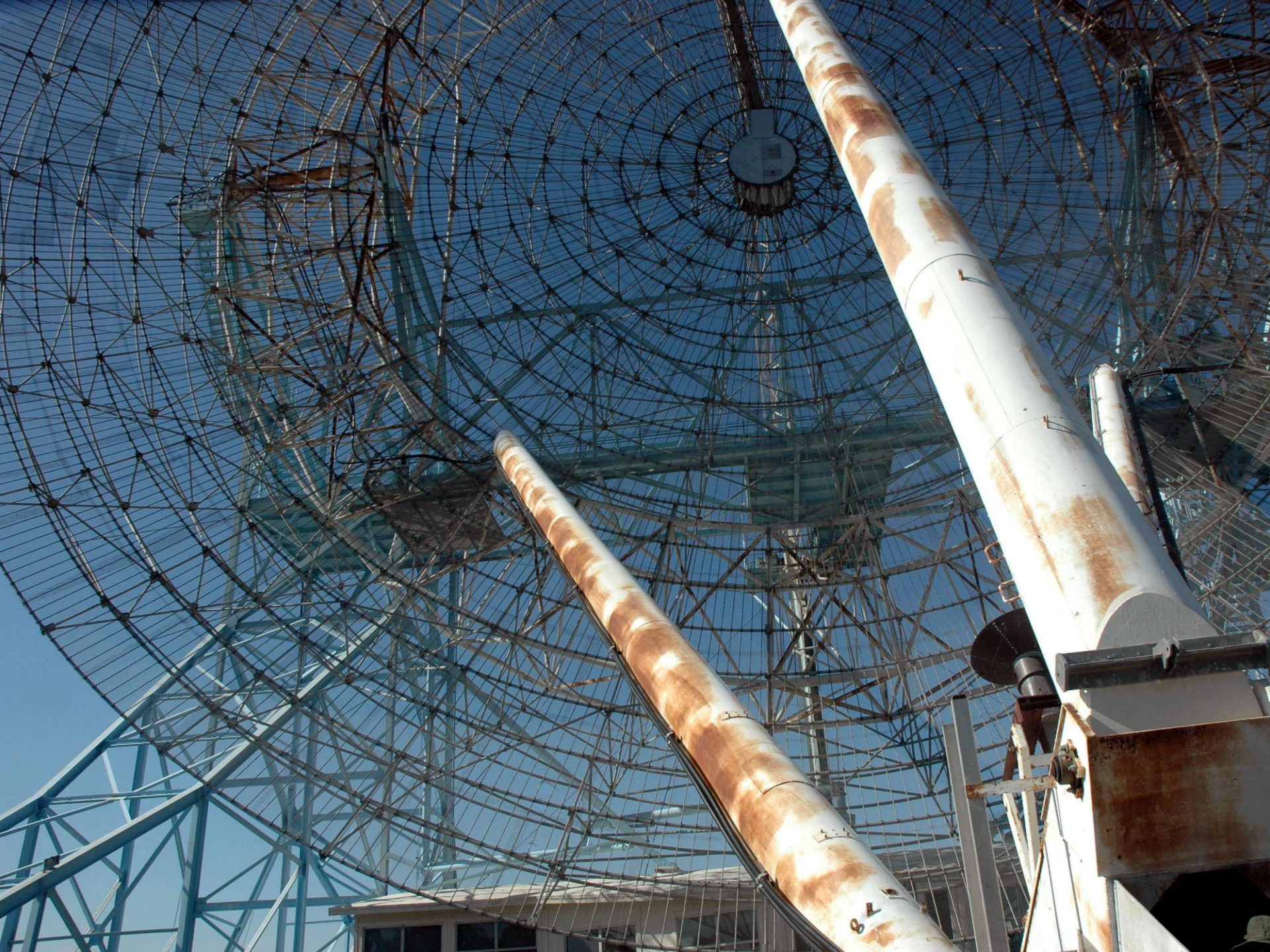
Inside feed showing feed probes.

SHAKEDOWN TEST – May 26th, 2009


SRI International


CHAMPION
AUG California
W6TE
FRESNO COMMUNITY
CONCERT BAND


FWD
RFL
KENWOOD
KENWOOD



Dr. Wayne Overbeck, N6NB, and Pat Barthelow, AA6EG.

Tripod arm being winched into place by Dr. Mike Cousins and Lance Ginner, K6GSJ.


STOW:
SRI International
SRI International


Jim Klassen, N6JMK, listening to echoes

New York Times reporter, Ashlee Vance, and photographer taking pictures of me for NYT story.


Two weeks later K6MYC joins the group with QRO power!


6 X 2C39 water cooled, cavity amplifier
capable of 1 KW on 1296 MHz!


FWD
RFL

Echoes of Apollo – Stanford
June 25-27th

1-5/8” Patch Panel…


K6MYC, K6GSJ, W6TE and N6JMK


Soloes of Apollo


BBQ at the Ginner residence…


After a hard days work no self respecting
Moonbouncer would be without a glass of wine
and a bottle of Excedrin..


The morning of June 26th "Echoes of Apollo" begins.
AMTRACK ver 2001 Antenna Info -- 45.7-m dish, Stanford
YYYY MM DD HHMM:SS.th Time left in Event AMT file name
2009 6 26 1956: 8.87 0001:51.13 C:\AMT\eme626.ant
Event # : 59 Mode : 4 Next event : 60
Azimuth 1 : 101.75 Elevation 1 : 27.61 Time 1 : 195600
Azimuth 2 : 102.09 Elevation 2 : 27.99 Time 2 : 195800
Commanded Azimuth : 101.78 Commanded Elevation : 27.64
Indicated Azimuth : 101.80 Indicated Elevation : 27.50
Beam Azimuth : 101.78 Beam Elevation : 27.64
Azim posn error : 0.00 Elev posn error : 0.00
Azimuth offset : -0.00 Elevation offset : 0.00
Azimuth rate : 0.00 Elevation rate : 0.00
Az-rate-desired : 0.00 El-rate-desired : 0.00
Action : Composite scan. Beam Tracking = TRUE
EvtRng = TRUE ERROR = FALSE Track Log = TRUE DMCerr = FALSE
Load AMT file. Toggle Beam/Ind Tk Stop Antenna Quit
Pause Next Event Jump to Event # Enter Offsets Go Track
PgUp TrackLog on PgDn TrackLog off UDarrow El ofst Az RLarrow
Lat: N 37° 24' 30.7944"
Lon: W 122° 10' 46.1606"
Track Elev: 399.62 ft
May 1999, NRL Ref: WGS-84
W6SRI
STOW:
AZ = NORTH
ELEV >85
ACC
19.56.08
TIME
AZIMUTH
101.80
ELEVATION
27.50
START DRIVES ONLY IN STANDBY OR FINAL LIMIT.
WAIT 10 SEC. MINIMUM BEFORE PUSHING RATE OR RETRACT SWITCHES.
STOP DRIVES IN STANDBY. (OR EL. AT 3° IN PROGRAM)
LOWER TRIPOD ONLY WHEN DISH IS BELOW 2° ELEV.
RATE
ERROR
PANIC
MODE
DELL


Scott
XTREME
Rags

QSO Between Astronaut Bill Anders and Reporter Lisa Sonne

This historic QSO was completed on 23 CM between stations K5SO and W6SRI (Stanford SRI dish). Lisa Sonne is a reporter for Wired Magazine.


esa

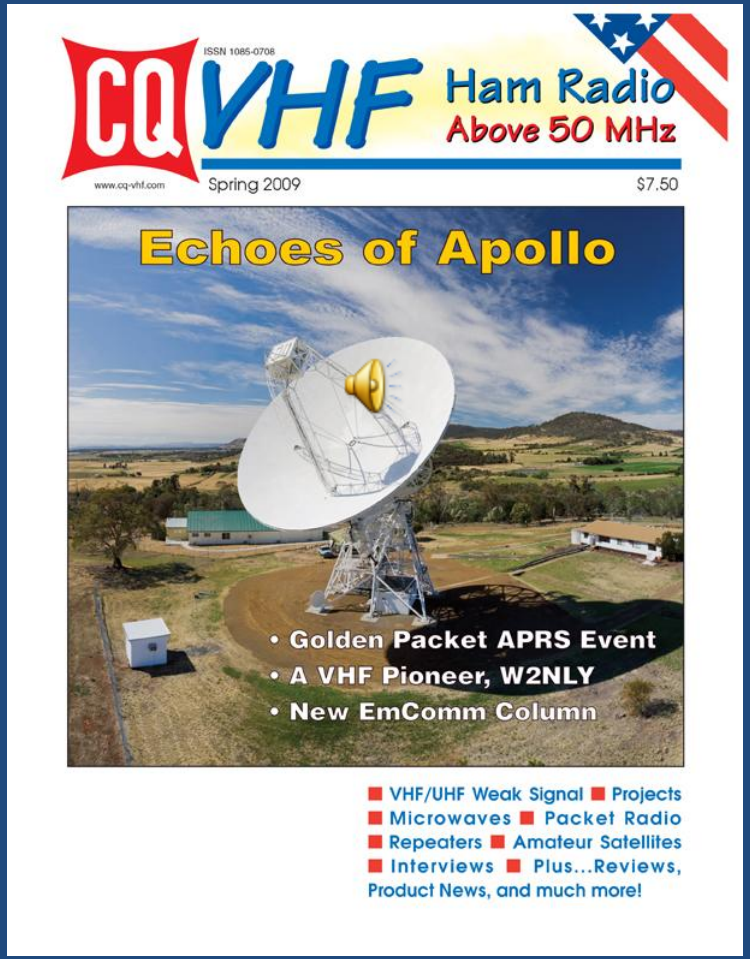
This report from Christop Joos from Switzerland

More than 300 Visitors, many Families, Swiss Television, News Journalists, joined our outstanding Party. 45 Children took this chance to send a short Message to the Moon. And a few did a great job and learned very quickly how we communicate.

Report from Mt. Pleasant

- Completed a 10 mw moonbounce QSO, this maybe a record for the smallest power ever used for a moonbounce contact on 1296 MHz,

CQ-VHF Magazine



NEW YORK TIMES

- Mar 22, 2009 - **World Moon Bounce / EME Day Gathering Momentum.**
- June 26, 2009 - **A Ham Radio Weekend for Talking to the Moon**

Jim Klassen, N6JMK, Lance Genner, K6GSJ, and Dr. Michael Cousins pictured in NYT article.

San Francisco Chronicle
June 27, 2009

- **Ham radio operators shoot for the moon**
  - Scores of Bay Area ham radio operators will aim high this weekend to see who can bounce their signals off the moon in an effort to talk to friends far away. It won't be an easy feat; it has never been tried before, said Doug Teter, a computer cable specialist who is coordinating the effort led by the Palo Alto Amateur Radio Alliance, but alliance members will have a go at it, competing to see who can be the first to talk to a friend on the other side of the United States or Canada.

San Jose Mercury News
June 27, 2009

- **Stanford dish part of weekend festival of moon talking**

- Dogs bay at it. Lovers swoon under it. And some people like to bounce their voices off it.
- The first two are easy, but sending a voice signal 239,200 miles to the moon and back is not quite as simple.
- Today, amateur radio buffs or "hams," as they call themselves, will hold a global bounce-fest, using as many giant parabolic antenna radio telescopes as they can borrow around the world.
- One of them is located on a hill overlooking Stanford University's campus and will serve as the command center for the weekend's event.
- Not that one needs an excuse to hold a moon-bounce, but this one is being held as a kind of advance celebration of the 40th anniversary next month of the Apollo 11 mission

Reuters News Service

Top 10 News stories of June 27th! **Moon-lovers remember Apollo with radio chit-chat.**

Reuters News Service
June 27, 2009

- **Moon-lovers remember Apollo with radio chit-chat**
- SYDNEY (Reuters) - Radio hams and amateur astronomers around the world spent the weekend bouncing radio conversations off the Moon to one another in commemoration of the Apollo 11 landings 40 years ago, organizers in Australia said Sunday.
- Although they had some clear and extensive conversations, they had to be patient. It takes around 2.5 seconds for a radio signal to reach the Moon and bounce back to another part of the Earth, so it took around five seconds to get a reply.
- Initiated a few months ago by science buffs in Australia and the United States, 'Moonbounce' was just winding up on Sunday Australian time after a 24-hour special event that organizers hope will become annual.
- It brought together hundreds of amateur radio hams around the world, event co-founder Robert Brand told Reuters, some armed with their own radio dishes.

Wired Magazine

- **June 3rd. One Giant Bounce for Mankind**
- **July 6th. - Ham Operators Shoot the Moon**

Pat Barthelow, AA6EG, standing on SRI's Stanford dish's feed-pod.

SRI Stanford EOA Team

- Dr. Michael Cousins
- Mike Staal, K6MYC
- Dr. Wayne Overbeck, N6NB
- Jim “Chickenwire” Klassen, N6JMK
- Lance Genner, K6GSJ
- Pat Barthelow, AA6EG
- Dr. Dave Leeson, W6NL (Stanford Univ.)
- Larry Bettencourt, WA6LUT
- Stephen Muther, WF6R (SRI)
- Brian Klofas, KF6ZEO (SRI)
- Dave Smith, W6TE