



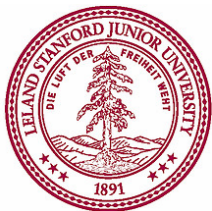
Global Ground Station Survey

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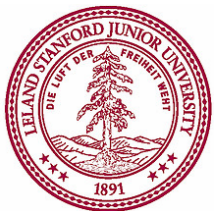


8/9/2008

CubeSat Workshop

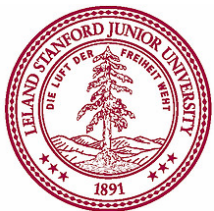
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- Results Summary
- Capacity Modeling
- Future Work

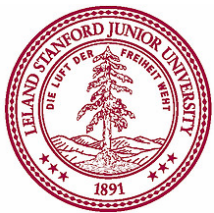
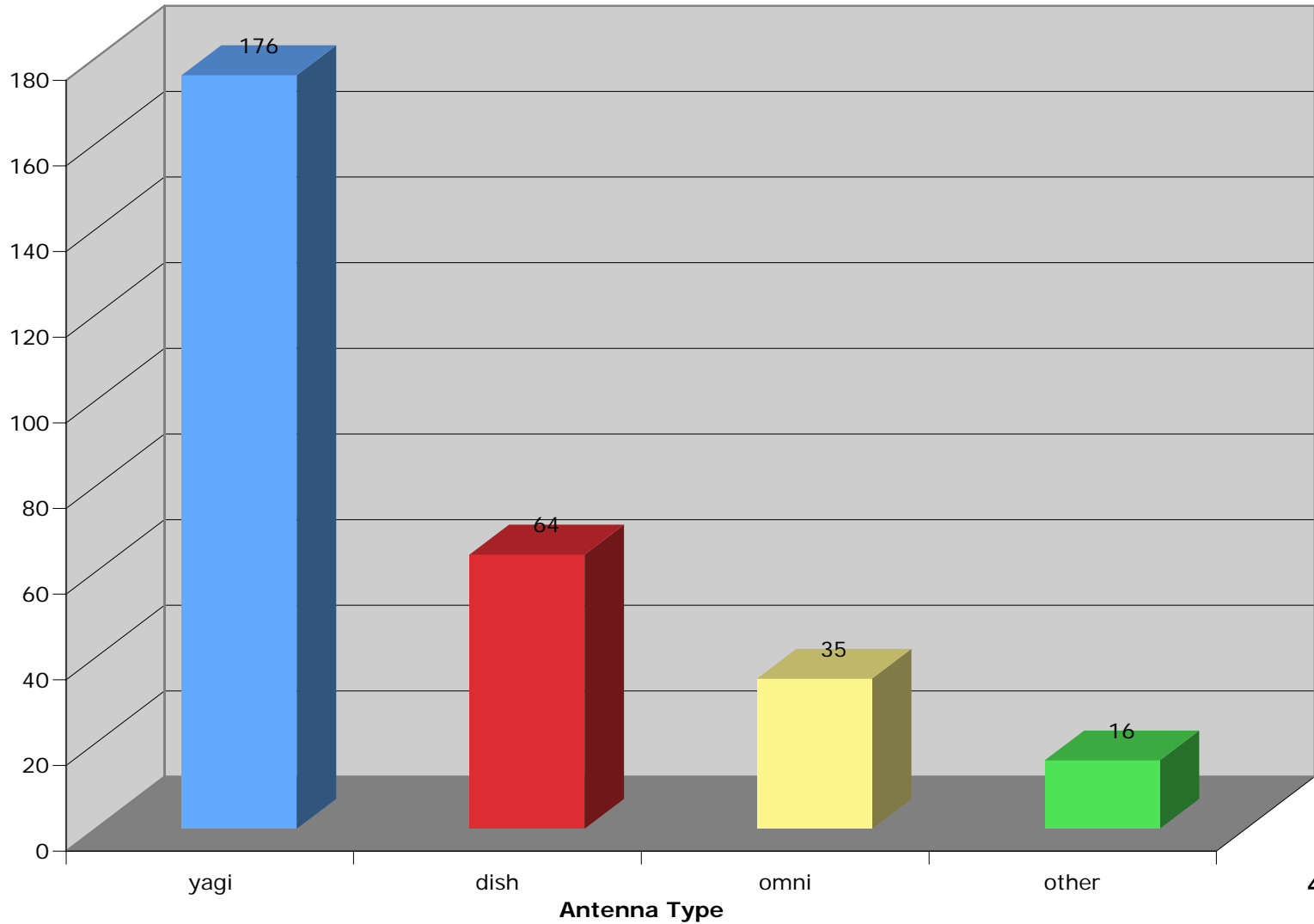




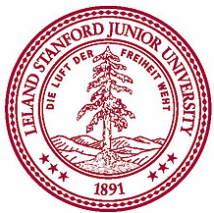
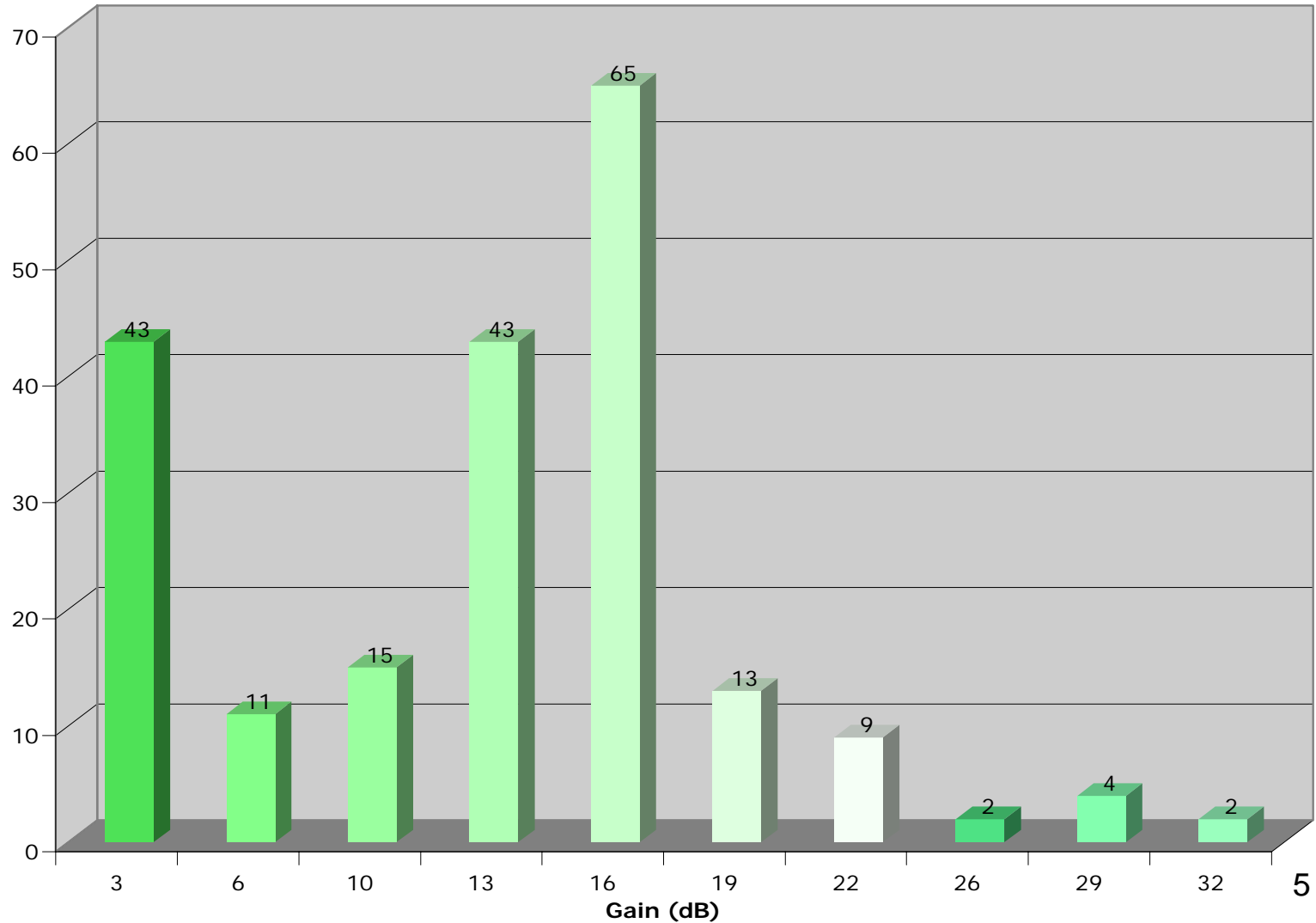
- Thank you to our current participants
- 104 Registered Institutions
- 98 Stations
- 291 Individual Antenna Systems



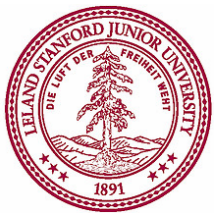
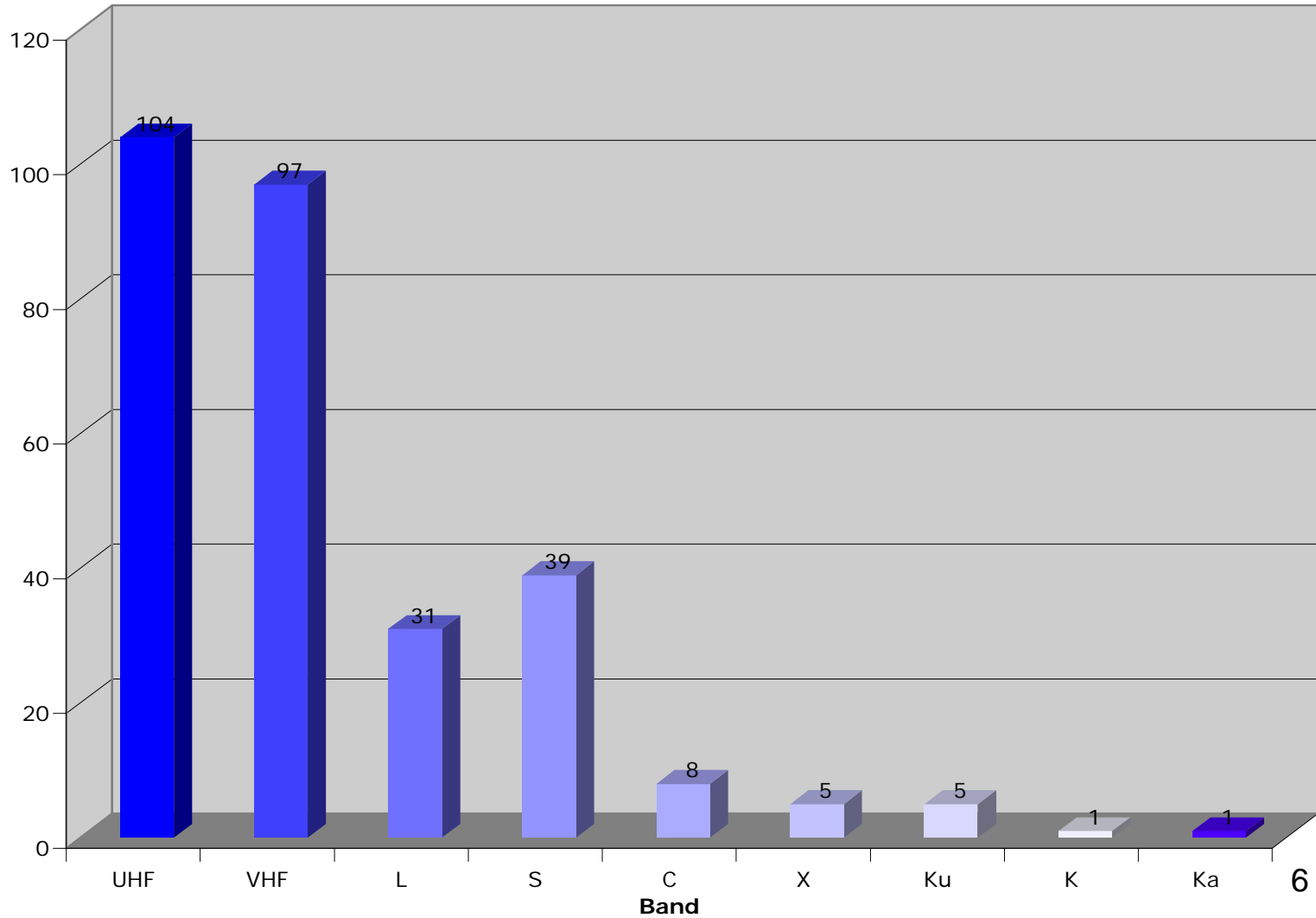
Types of Antennas



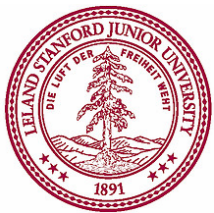
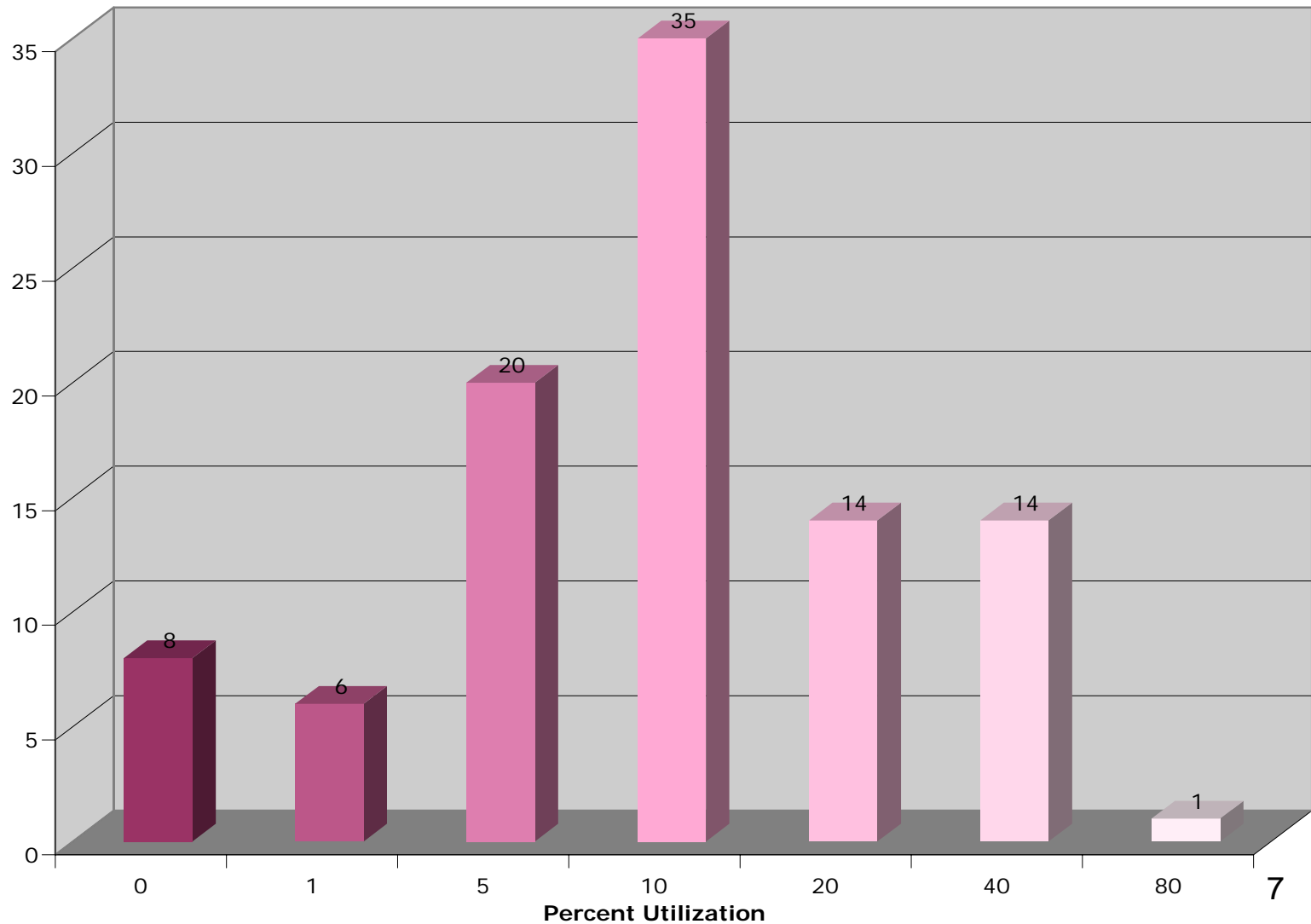
Gain Distribution



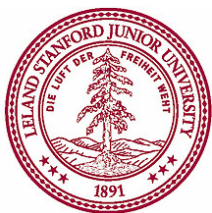
Operational Bands



Percentage Utilization



Worldwide UHF/VHF Station Map



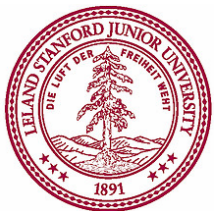
104 Stations

- Baseline Astronautical Development LLC
Helium-100 UHF/VHF Transceiver
 - At least 40 kbps



Image courtesy of Astronautical Development, LLC

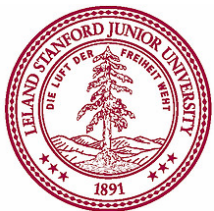
- ~50 Gb excess daily downlink capacity



Worldwide S Band Station Map



39 Stations



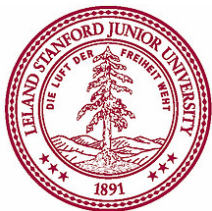


- Baseline SpaceQuest TX-2400
 - 1 Mbps

QuickTime™ and a
decompressor
are needed to see this picture.

Image courtesy of SpaceQuest, Ltd

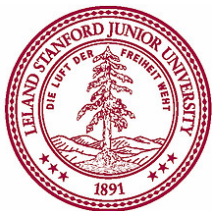
- ~370 Gb excess daily downlink capacity
- ~13.5 Tb data per year!



Single S Band Example Mission



- 700 km sun synchronous orbit
- Considering both dynamic station availability and ground track - average 1.7 “good” passes per orbit.
 - “Good” pass average 12 minute window
- ~2.3 Gb per day peak downlink capacity





- Maintain survey as ongoing repository of GS information
- Some dubious initial entries, need to clean-up and verify stations
- Identify subset of ideal stations, conduct detailed case study of availability, improved temporal predictive capacity model
- Make results publicly available
 - Web interface for querying database





http://ssdl.stanford.edu/gs_survey/

Username: gs

Password: stanford

