

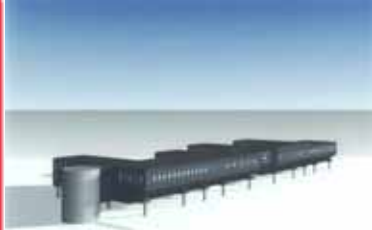
USAP Customer Services Advisory

NASA TDRS F1 Satellite ends
service supporting communication
with South Pole Station

Patrick Smith and Vladimir Papitashvili

Office of Polar Programs

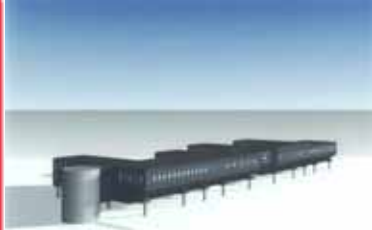
National Science Foundation



South Pole Station Network/Internet Services Advisory



- Who is affected? – All South Pole Station data communications and Internet users.
- What will happen? – TDRS F1 satellite services will permanently end.
- When? - 2300Z 21 Oct 2009 (following the last TDRS window of the day).
- Why?
 - NASA has had recent operational problems with another First Generation TDRS satellite that has required shuffling of their fleet and the slot used by TDRS F1 is needed for another satellite.
 - The last space-ground transmitter tube that supports all South Pole communications has reached failure point.



What Does This Mean?

- NSF will be assigned as a scheduled user of operational satellites TDRS F4, F5, and F6:
 - NSF will utilize the full capability of the SPTR-2 system to point to any of these satellites
 - Raytheon will schedule daily contacts for week increments

How Service Will Be Affected?



- As a scheduled user, NSF will compete with other NASA users expecting on average:
 - From 2-4 hours/day of TDRS service, likely broken into 2 or 3 blocks - not as one large block like TDRS F1 had.
 - Depending on the satellites scheduled for a particular day, the time blocks may occur at similar times as it was with TDRS F1, or may occur 8 hours earlier in the day relative to TDRS F1.
- SPTR-2 bulk File Transfer Service capacity should not be affected:
 - The “store & forward” FTS design was deliberately created to deal with interruptions and variability in daily contact.
 - Data forecasts indicate that ample capacity is expected to meet average daily data flows forecast.
- Internet service will feel the affects
 - Multiple daily blocks of time that are unpredictable will create uncertainty in routine use for real-time sensitive activities like VoIP phone service.
 - Automated activities that auto-sense the connection (e.g., automatic file transfers) should still function.
 - The user community will have to be more “clock-aware” and tolerant of interruptions.

What Else?



- Publishing reliable daily TDRS contact schedules for the community is still TBD and uncertain if achievable.
- Internet service will be emphasized on GOES-3:
 - GOES should provide 6.5 hours/day of continuous coverage.
 - GOES has a slower link rate than TDRS, but GOES provides certainty in a large continuous coverage block.
 - GOES is expected to carry station VoIP phone traffic.
- TDRS may be used to help unload network store/forward traffic, such as e-mail and software patch updates:
 - This helps remove network traffic load surges when the GOES window opens.
 - This should help reduce congestion, i.e., sluggish performance, for GOES Internet sessions.
- The Iridium IMCS system will continue in operation per current ops during broadband satellite blackout periods:
 - Carry email traffic and its current dedicated science data.