Establish a “Lambda Network”

- Use optical wavelength technology (10Gbps Ethernet per wavelength)
- Connect GSFC’s Earth Science Greenbelt facility in Maryland to Scripps Institution of Oceanography in through the University of California at San Diego (UCSD)
- Ride the National LambdaRail

Synergies

- Falls in with reinvigorating the nation’s cyber infrastructure
- Takes advantage of next generation networking technologies (Lambda-Nets)
- Makes use of NSF funded compute, storage and visualization resources being implemented at UCSD (OptIPuter and GEON)

Benefits

- Develop real-time interactive collaborations with leading Earth and space science academic institutions
- Enable scientists at both institutions to share and use compute intensive community models, complex data base mining and multi-dimensional streaming visualization
- Creates a virtual laboratory and SIO wing within GSFC’s Building 33
- Several NASA missions benefit from the high bandwidth connection, eg:
  - HPC between ARC/Project Columbia and GSFC/NCCS
  - CEOP data analyses between Rhodes (SIO) and Bosilovich (GSFC)
GSFC FY04 IRAD Proposal

"Preparing Goddard for Large Scale Team Science in the 21st Century: Enabling an All Optical Goddard Network Cyberinfrastructure”

Transcontinental, Regional, and Local Networking
- Became a member of the NLR, with NREN Project assistance, through a Mid-Atlantic Terascale Partnership membership arrangement
- Deploying GMPLS-managed Movaz Optical Switches and Add Drop Muxs at GSFC and in DRAGON regional multiwavelength network
- Utilize NLR lambdas between GSFC and UCSD/SIO
- Interconnect GSFC’s Thunderhead and other clusters to UCSD/SIO’s OptIPuter network at 10GigE via this Lambda Network

Application Development
- Integrate Earth System Modeling Framework software with GRID middleware by constructing prototype interfaces between the components
- Identify requirements for new methods and/or messages that would be desirable for supporting GSFC models and data assimilation