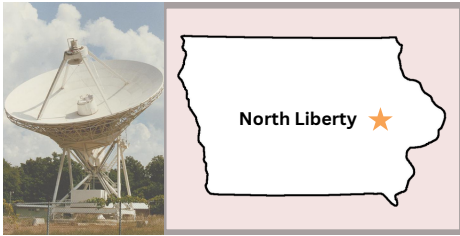


# AN INTERNET UPGRADE FOR REAL TIME PROCESSING

U.S. National Science Foundation  
National Radio Astronomy Observatory  
(NSF NRAO) located in North Liberty, Iowa

Service: Internet



## HELPING ASTRONOMERS

North Liberty, Iowa, is home of 1 of 10 US observing stations that make up the NSF VLBA network.

Each station provides data to help astronomers:

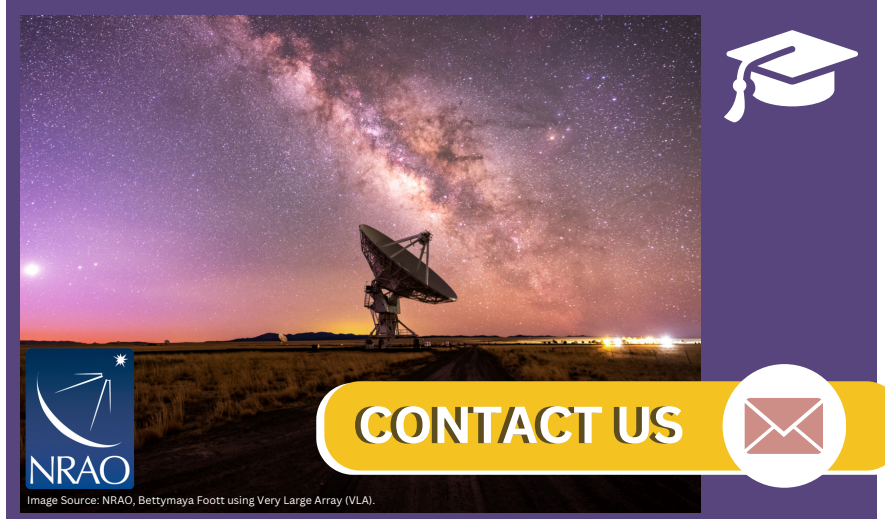
- update black hole theories
- watch space weather
- witness supernovae explosions
- hunt for planets around stars



"With the added bandwidth to 1Gb the site is currently testing real time data processing. Our future goal with the site is to upgrade to 10Gb ."

### Sandy George

Network Operations Manager  
National Radio Astronomy  
Observatory (NSF NARO)



## CONNECTIVITY TO VIEW GALAXIES

ICN upgraded Internet connectivity to the radio antenna in North Liberty for the NSF NRAO. This facility is 1 of 10 observing stations that make up the U.S. National Science Foundation Very Long Baseline Array (NSF VLBA) network. As a "super eye" for astronomers, these stations across the United States have the mission of viewing galaxies and supermassive black holes.

## ABOUT THE STATION

The station consists of a 25-meter radio antenna dish and a control building. Identical to the other sites, the antenna collects, digitizes, and records radio signals. The telescope generates 8Gb of data per observation using disk storage capabilities. The data captured is then sent to the operations center in New Mexico to be processed.

The bandwidth increase at North Liberty was needed since the stations are moving to real time processing of data.

Sandy George, NSF NRAO's Network Operations Manager explains, "The network connection was used for command and control of the telescope. The network bandwidth was insufficient to transmit data back to the operations center in Socorro, NM, data has always been stored on portable disks and shipped to Socorro".

## REAL TIME DATA PROCESSING

With the added bandwidth to 1Gb the site is currently testing real time data processing at 512Mbps. A future goal with the North Liberty site is to upgrade to 10Gb to perform actual real time processing.

The site was designed and built to operate 24 hours a day, every day of the year. The ongoing operations means data can be consistently gathered to be analyzed for discoveries.