HERE GOES RADIOTELESCOPE (2020)
HEIDI NEILSON and HARRY DOVE-ROBINSON

Here GOES Radiotelescope is an artist-run DIY ground station receiving GOES-16's faint, data-dense GRB transmission, and is one of only about 15 independent stations to do so. Visitors to the sculptural station sit inside it and look through the "telescope" to see images of the Earth as they are being received from the satellite. From the seat, we effectively see ourselves through the satellite's eyes.

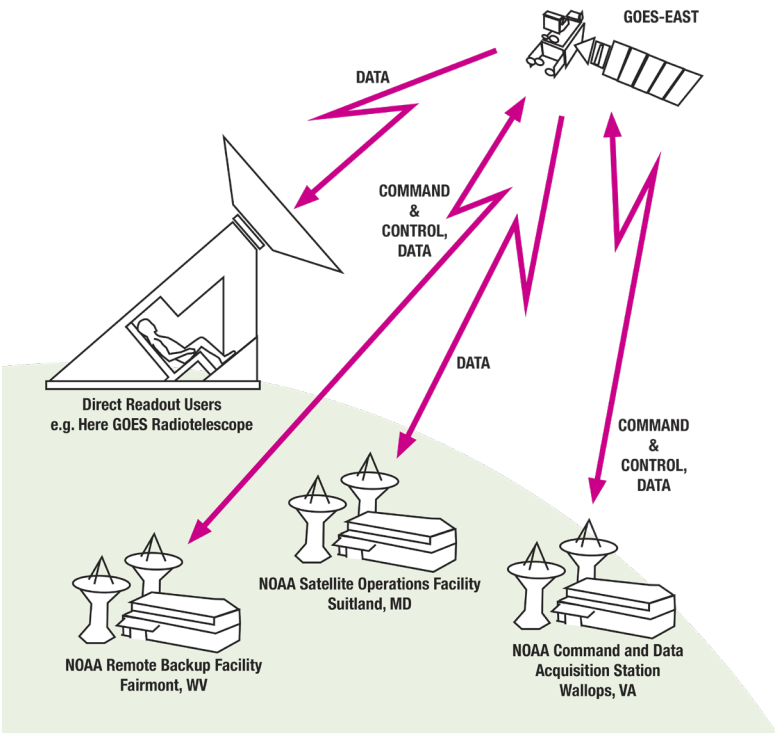
GOES-16 is one of NOAA's flagship satellites that gather data for monitoring and predicting weather on Earth. Also known as GOES-East, it is positioned at a longitude far above the East Coast of the United States.

GOES-16 is about the size of a school bus with a large solar panel wing and orbits the Earth about 22,000 miles away from its surface at a speed that matches the Earth's spin. Its stationary nature in orbit relative to the Earth enables static structures on Earth's surface to be in direct relationship with the satellite. **Here GOES Radiotelescope's** dish is fixed and pointed directly at the satellite, which is 41-degrees above the horizon at Wave Farm in Acra, New York, to receive the faint radio signal.

GOES-16's CAMERA

Its primary instrument, the Advanced Baseline Imager (ABI), takes pictures of four areas: the entirety of the Western Hemisphere, the United States and its neighbors, and two cropped sections that are adjusted to follow the latest weather developments. The detectors on the ABI collect image data at particular wavelengths that are sensitive to different aspects of the landscape's weather such as ozone, carbon dioxide, water vapor, snow, vegetation, and wildfires.

The images are received as individual spectral bands, which are seen as greyscale through **Here GOES Radiotelescope**. Used mainly to evaluate aspects of weather conditions, these greyscale images are also combined to create "true color" images which emulate the range of vision human eyes can see. In addition to Earth observations, GOES-16 monitors space weather - energy and particle output from the sun which can damage satellites and electrical grids on Earth.



SOUND

The sound heard onsite at **Here GOES Radiotelescope** is a 'sonification' created from space weather data collected in real time by **Here GOES Radiotelescope**. It is an audio imagining of the soundscape of solar wind hitting and flowing around Earth, as if it were a field recording of the interaction of energies.

WHY

Here GOES Radiotelescope creates an avenue for individuals to directly relate to the usually invisible infrastructure we rely upon. Seeing the image stream and hearing data from GOES-16's constant radio transmission is a reminder of the ubiquitous invisible radio data surrounding us, and how much we rely on our orbiting infrastructure and these streams for weather forecasting, navigation, communication, and many other services.

By receiving the data stream as individuals, we participate directly in the activities in Earth's orbit and are made aware that such unmediated participation is possible. Visitors sitting in the physical **Here GOES Radiotelescope** structure are placed in direct positional alignment with the satellite, making the distant spacecraft relate to our bodies and the landscape we inhabit; we see the wide view of the full Earth from space, and can intuit our place on it.

Read more, look, and listen at **heregoesradio.com.**

Heidi Neilson (@H_Neil / heidineilson.com) is an interdisciplinary artist interested in the connections between people on the ground and off-planet conditions and infrastructure.

Harry Dove-Robinson (@wxstar3000 / wx-star.com) is an engineer and documentary filmmaker interested in satellite remote sensing and severe weather.

Harry and Heidi first connected in 2017 in an online forum for DIY weather satellite image transmissions. They are collaborating on **Here GOES Radiotelescope** to further interest and participation in extraterrestrial radio reception.