

# INTRODUCTION TO RADIO ASTRONOMY

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# WHAT PART OF THE SPECTRUM?

- Radio astronomy uses the radio frequency portion
- These waves have the longest wavelengths and the least amount of energy

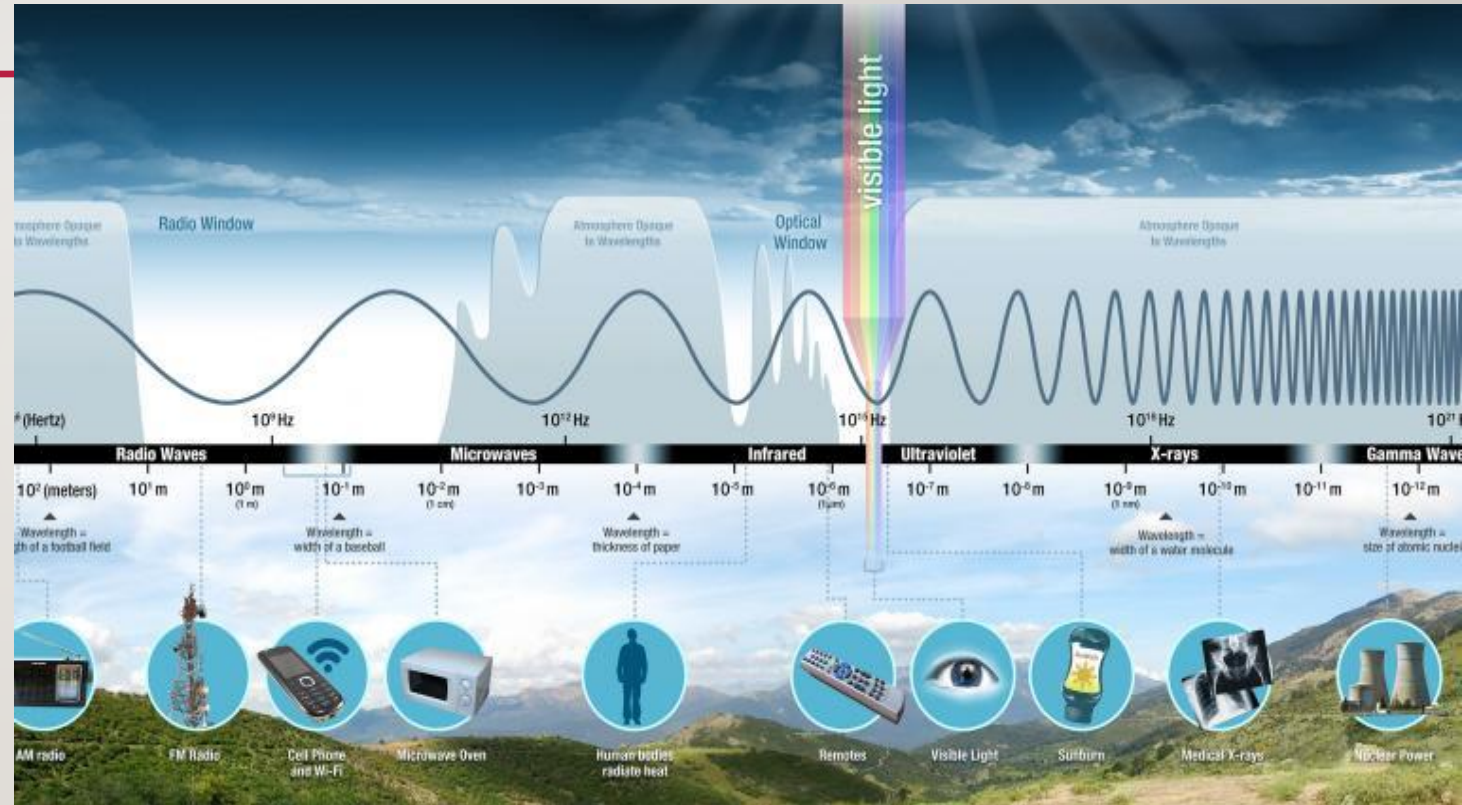


Image courtesy of NOAA <https://www.nesdis.noaa.gov/next-generation/geoxo/geoxo-imager-gxi>

# TYPES OF “TELESCOPES”



Image courtesy of NRAO/AUI/NSF



Image courtesy of <https://astronomynow.com/2016/09/26/australian-technology-runs-worlds-largest-single-dish-radio-telescope-in-china/>



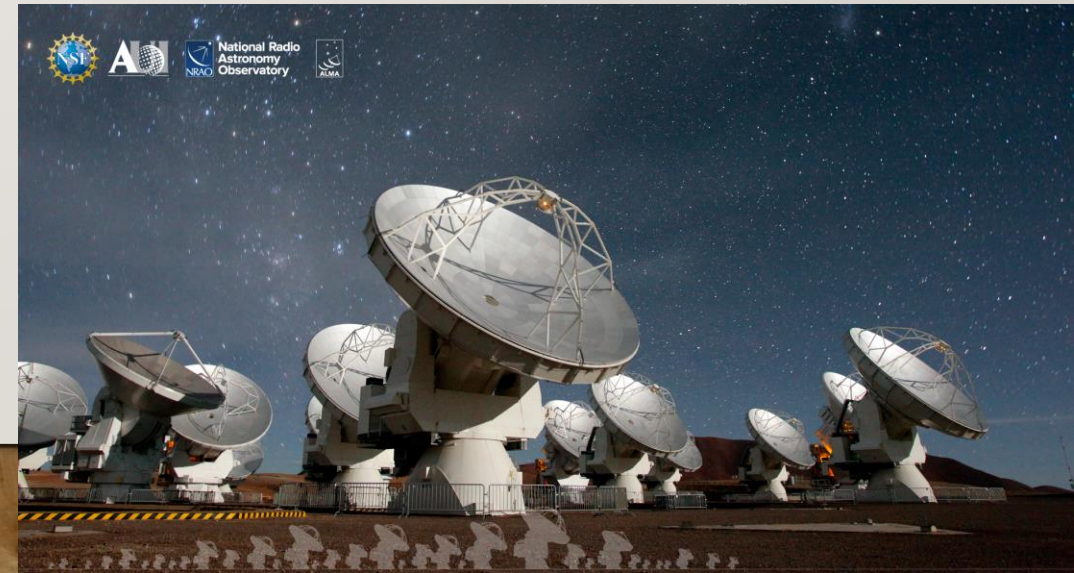
Image courtesy of David Schneider <https://spectrum.ieee.org/track-the-movement-of-the-milky-way-with-this-diy-radio-telescope>

# HOW A RADIO ASTRONOMY DISH WORKS

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- <https://public.nrao.edu/radio-astronomy/the-technology-of-radio-astronomy/>

# MORE IS SOMETIMES BETTER



# MAJOR DISCOVERIES

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- Discoveries of Quasars
- First image of binary pulsar
- First imaging of an asteroid
- Discovery of exoplanets
- First image of a black hole

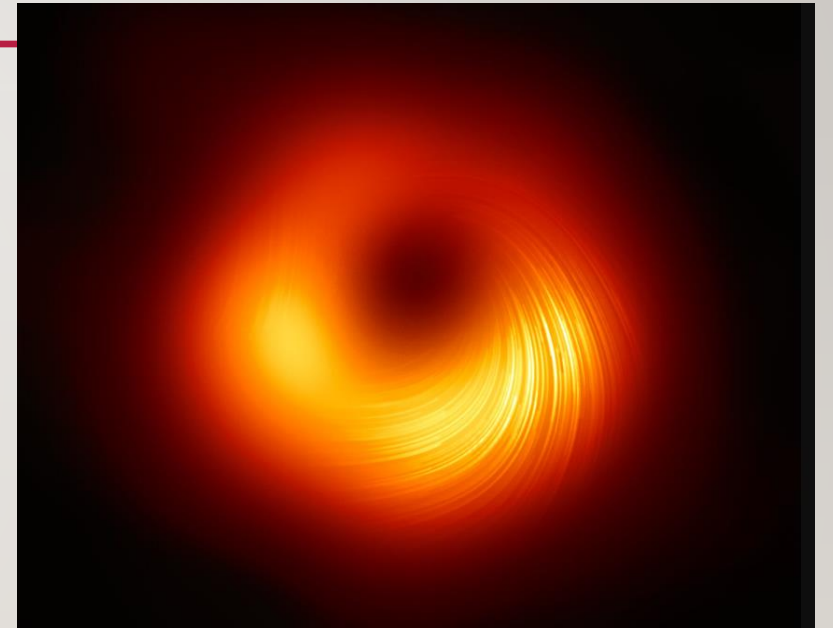


Image courtesy of Event Horizon Collaboration

# RADIO ASTRONOMY OBSERVATORIES

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- There are observatories located around the world. The list below is just a few. You will get to investigate one later in this lesson.

Chibolton Observatory

Blackrock Castle Observatory

Bleien Radio Observatory

Dwingeloo Radio Observatory

Effelsberg 100 m Radio Telescope

Mount Pleasant Radio Observatory

Madrid Deep Space Communication Complex

Parkes Observatory

Warkworth Radio Observatory

Atacama Large Millimeter Array

Greenbank Observatory

Hat Creek Radio Observatory

Jansky Very Large Array

Very Long Baseline Array