

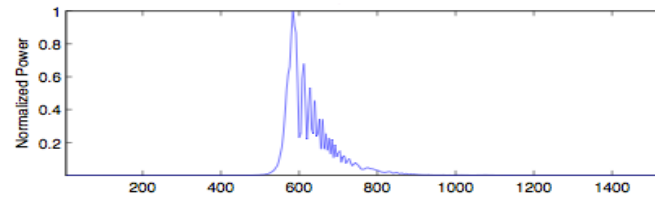
What does a RADAR detect?



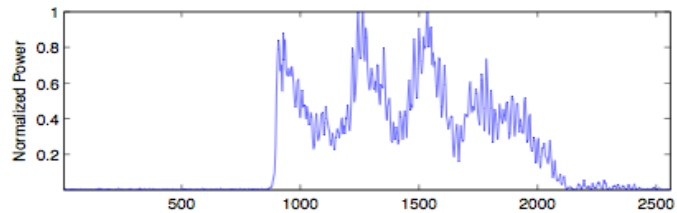
Meteor echoes

Specular

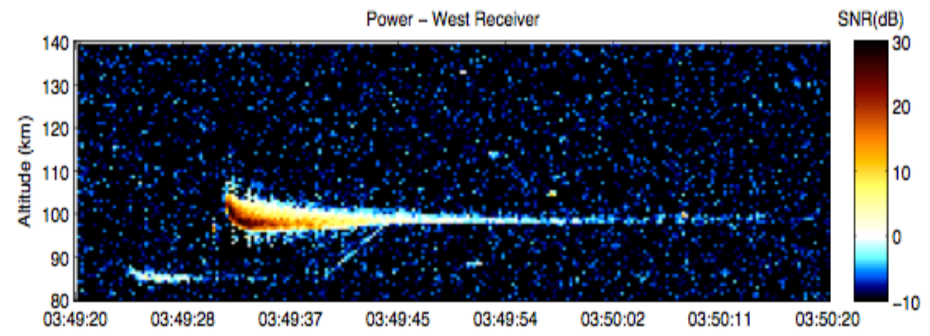
Underdense



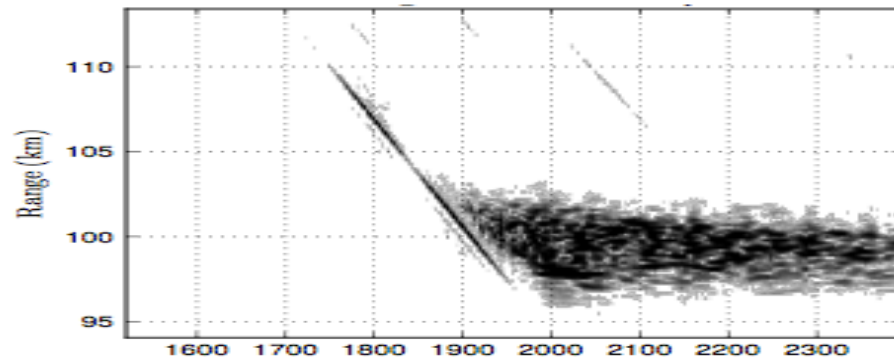
Overdense



Non-specular

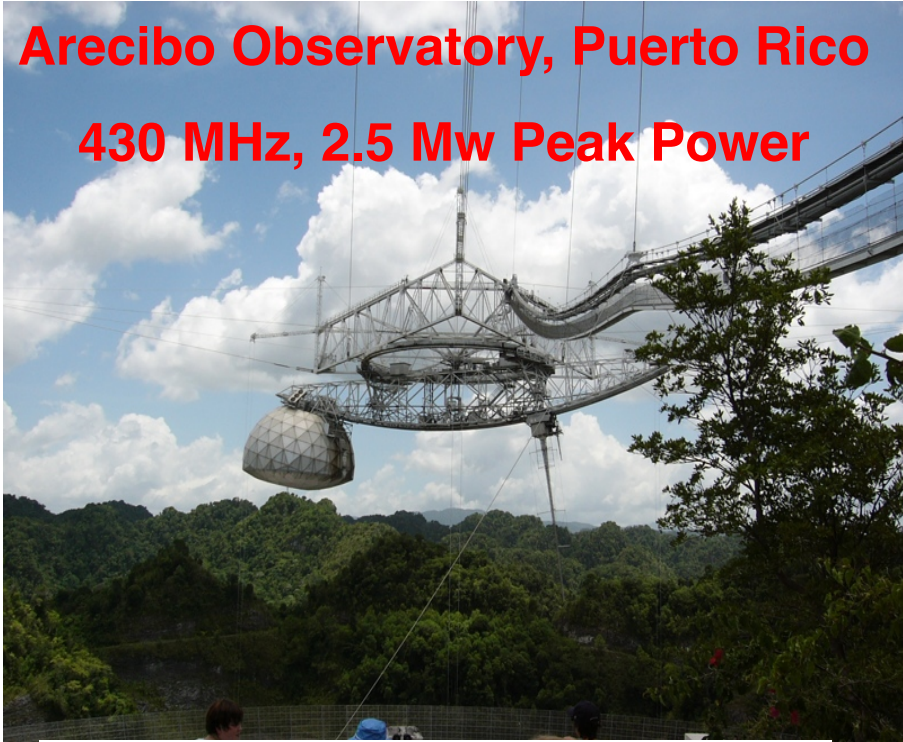


Head-echoes



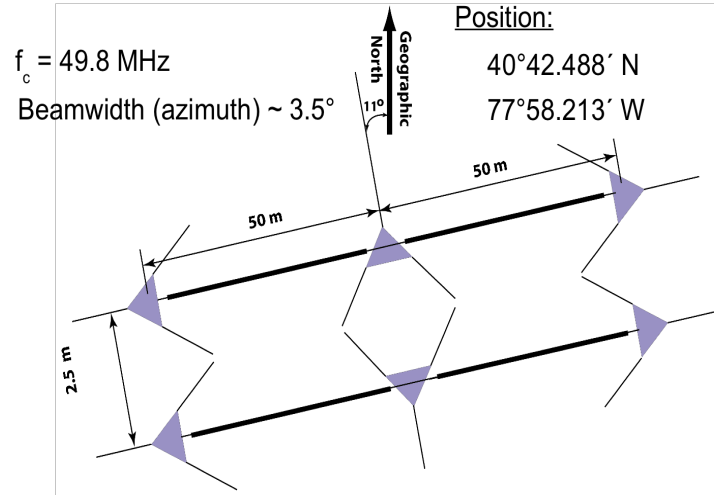
Arecibo Observatory, Puerto Rico

430 MHz, 2.5 Mw Peak Power



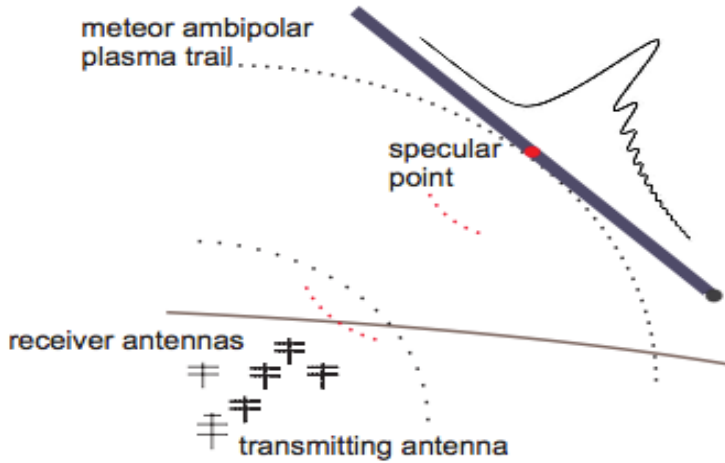
Penn State Radar, Rock Springs, PA

49.8 MHz, 20-30 kw Peak Power



Jicamarca Observatory, Lima - Peru

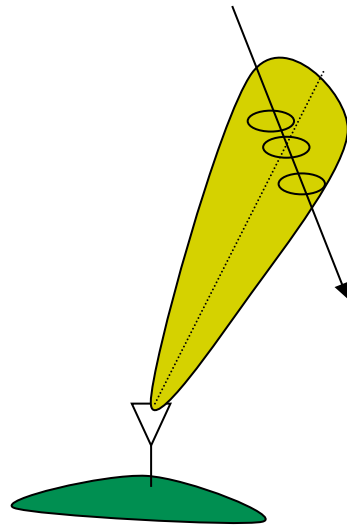
50 MHz, 4 Mw Peak Power



PENNSTATE

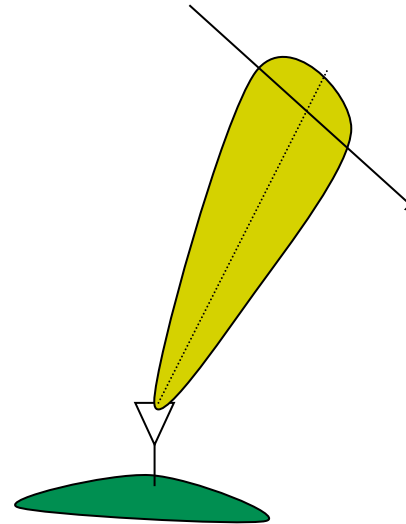


Non-Specular Events



- ❖ Non-specular trails are reflections from turbulent meteor plasma that occur at an arbitrary angle as long as the radar points perpendicular to B
- ❖ They result in longer duration echoes due to the instabilities which can last several seconds or more
- ❖ They span larger altitude ranges due to the FAI reflection

Specular Events



- ❖ Specular trails are generated when a meteoroid passes perpendicular to the radar beam
- ❖ They are observed as less than one second duration echoes from a single range

