

Imaging of Ionospheric Irregularities via Observations of their Impact on the Plasmasphere

Gradients in ion and electron density associated with disturbances within the mid-latitude ionosphere are broadcast, in a way, along Earth's magnetic field lines to produce companion irregularities at the conjugate point. This process also introduces density gradients among flux tubes within the plasmasphere between the two magnetic hemispheres. While these gradients can be rather subtle, they offer a way to monitor for and image ionospheric irregularities over a large area from a single location. By observing a strong cosmic radio source with a low-frequency