

Results from GMRT 150 MHz radio observations

C. H. Ishwara-Chandra

National Center for Radio Astrophysics, TIFR, India

Abstract

We present results from deep 150 MHz low frequency radio observations with Giant Meterwave Radio Telescope (GMRT), India. GMRT consists of 30 antennas, each of 45 meter diameter operating at frequencies from 150 MHz to 1400 MHz. At 150 MHz, GMRT can image the sky with high resolution ($\sim 20''$) of area of ~ 15 square degrees with single pointing, which allows to detect a few hundred radio sources. We have carried out deep imaging of two fields, one field of Upsilon Andromade and another field of cluster Abell 764 with GMRT at 150 MHz. The rms noise achieved is ~ 2 mJy/beam. The resolution in both images were $\sim 20''$. The radio spectral index analysis of the sources in the field using the higher frequency NVSS (1400 MHz) and WENSS (325 MHz) flux densities with GMRT flux densities at 150 MHz helps us to detect sources with extreme spectral index. Our analysis shows that $\sim 10\%$ of the sources have very flat spectra and a slightly larger fraction of the sources have steeper spectra with the spectral index exceeding 1 ($S_\nu \propto \nu^{-\alpha}$). Since majority of high redshift radio sources tend to exhibit steeper radio spectra, deep imaging of the fields with GMRT at 150 MHz will help to detect/discover high redshift radio sources. The GMRT 150 MHz survey can also be useful to study the known the fields with information available at other wavelengths.