

SIBERIAN RADIOHELIOGRAPH — NEW OPPORTUNITIES FOR STUDYING THE SOLAR CORONA

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The Siberian Radioheliograph (SRH) is a new generation solar-dedicated radio telescope implementing microwave imaging spectroscopy of the solar corona. The SRH data are microwave spectra obtained at each point on the solar disk.

The SRH consists of three T-shaped antenna arrays operating in the ranges 3–6, 6–12, 12–24 GHz, receiving signals of both circular polarizations. Antenna arrays 3–6 and 6–12 are equidistant (redundant), the 12–24 array is partially equidistant. Redundancy is used to calibrate the antenna gains. The field of view of the SRH is about 1.5 degrees, which allows obtaining images of the whole disk and CMEs. The instantaneous frequency band is 10 MHz, the sensitivity by brightness temperature is about 1000 K, by flux density up to 0.01 sfu. The snapshot time for one image in one polarization is 10–100 ms. The full sweep time is equal to the doubled product of the number of operating frequencies by 10–100 ms. The spatial resolution varies within 5–25 arc seconds depending on the observation time and frequency.