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Ground-based decameter wavelength observations of the planetary and stellar radio emission

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The studies of the non-thermal radio emission of the magnetized objects (the Sun, planets, exoplanets, active stars, etc.) are the important field of low-frequency radio astronomy and astrophysics. This kind of radio emission mainly relates to transient phenomena and requires for its investigations the high sensitive radio telescopes as well as the special technique and methods. Such investigations represent the significant part of future LOFAR scientific program. But the existing largest instruments (first, the Ukrainian decameter radio telescopes UTR-2, URAN) give the good possibilities for studying. Huge effective area of UTR-2 radio telescope ($>$ 100 000 sq. m), broadband (8Ĕ32 MHz), high dynamic range, the electronic steering and multi-beam ON-OFF method implementation allow to reach the sensitivity less than 1Jy, high time and frequency resolution and reliable detection of weak sporadic low-frequency radio emission events. Here we present the main results of the studies of the Sun, Jupiter, Saturn, active stars radio emission as well as outer heliosphere investigation by the scintillation method. Special interest paid to the simultaneous ground-based and space low-frequency experiments with the existing and future space missions (WIND, Cassini, STEREO, etc.). The favourable perspectives of the future investigations are evident from the presented researches.