



The lower-ionospheric perturbation as a precursor to the 2011 March 11 Japan earthquake

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It is found that clear lower-ionospheric perturbations appeared as a precursor to the 2011 March 11 Japan earthquake. This study is based on the observation of two completely different phenomena: (1) subionospheric VLF/LF propagation anomaly on the NLK (Seattle, USA) – Chofu propagation path, and (2) depression of magnetospheric ULF emissions observed on the ground (Kakioka etc.). But, both effects are suggested to be interpreted by a unified phenomenon of seismo-lower ionospheric perturbation because they occurred on the same days of March 5 and 6, 2011.