

The Recovery Algorithm for Short-Exposure ERS Image, Space-Invariant to the Atmospheric Distortions

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Abstract. Negative influence of the atmospheric turbulence on the ERS systems is noted. Hardware and software technologies for partial correction of atmospheric influence are reviewed. A new algorithm for recovering the image undistorted by the atmosphere, which has a diffraction-limited resolution of the ERS telescope in its broad field of view, is proposed and proved.

The offered algorithm makes easier and increases the rate for Earth remote sensing (ERS) images receiving. This algorithm enables to determine and reimburse its atmospheric distortions at digital statistic processing of the fragments of one registered image. The algorithm is a new and can be applied practically in the ERS systems.

Keywords: turbulent atmosphere, problems of "seeing" and "isoplanacity", spatial filtration, image restoration.