SAR revealing hot-spots of internal solitary waves in the Eurasian Arctic

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** Internal waves (IWs) are important for dynamics of the Arctic Ocean.
** Recent in situ observations indicate enhanced IW-related vertical mixing over rough topography fostering the diffusion of heat from Atlantic water to the Arctic Ocean [1].
** Yet, the locations of enhanced IW activity and mixing still remain unclear.

• In the vicinity of the critical latitude (74.5°N) tidally generated IWs are similar to unsteady lee waves with short spatial and temporal scales and propagate in the form of packets of internal solitary waves (ISW) [2].
• Hot regions frequently observed by space-borne Synthetic Aperture Radars

MAIN RESULTS

4290 ISW PACKETS WERE IDENTIFIED IN 2880 ASAR IMAGES

KARA SEA

- IWs in the Kara Gates Strait
  Amplitudes ~30 m, wavelength 20-40 km (Morozov et al., 2009-10)

- Large-scale nonlinear internal waves in the White Sea

WHITE SEA

- Larger-scale nonlinear internal waves
  Amplitudes ~30 m, wavelength 20-40 km (Morozov et al., 2009-10)

- IKEs over the Arctic shelf
  Amplitudes ~30 m, wavelength 50 km (Morozov et al., 2009-10)

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