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Aral sea: dust storms and upwellings

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Dust storms represent a global phenomenon occurring regularly and have an impact on the dynamics of the water in the oceans and seas. Also important is the water saturation by the Fe contained in the dust particles. The letter fact leads to fertilization of the ocean by Fe elements. The Aral Sea is surrounded by dry lands and desert. Strong north-eastern winds may lead to pronounced dust storms. The examples of such storms appear in the images of AQUA and TERRA satellites are given. However, strong and steady strong winds may cause upwelling in the western part of the Aral Sea. An example is given in the case of pronounced upwelling on mid-May 2005. NOAA-12 and NOAA-16 satellite images on 15 and 16 may 2005 were analyzed in all spectral intervals.It is clearly seen that the central part of the Aral Sea is occupied by the cold upwelling waters. Analysis of the images in the visible and near IR spectrum shows clear and clean (no aerosols) atmosphere. Simultaneously, the data in the thermal IR channels show the existence of significant thermal inhomogeneities on the sea surface. One can see that the upwelling event occurs off the east coast of western Aral Sea and extends to the opposite shore. One can detect the separate jets in the field of the maximum distribution of the upwelling waters. We note that main topic of the presentation is poorly covered in the scientific literature. However, the upwelling is of great interest for studies of the dynamical features in the Aral Sea.