

20 years of regression of the Aral Sea from ENVISAT MERIS to Sentinel-3 SLSTR

Sentinel-3 SLSTR RBT acquired on 06 May 2017 at 05:54:47 UTC
Sentinel-3 SLSTR RBT acquired on 03 May 2018 at 06:09:54 UTC
Sentinel-3 SLSTR RBT acquired on 01 May 2023 at 06:21:19 UTC

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Fig. 1 - S3 (01.05.2023) - The Aral Sea is an endorheic lake located between Uzbekistan and Kazakhstan.

[2D view](#)

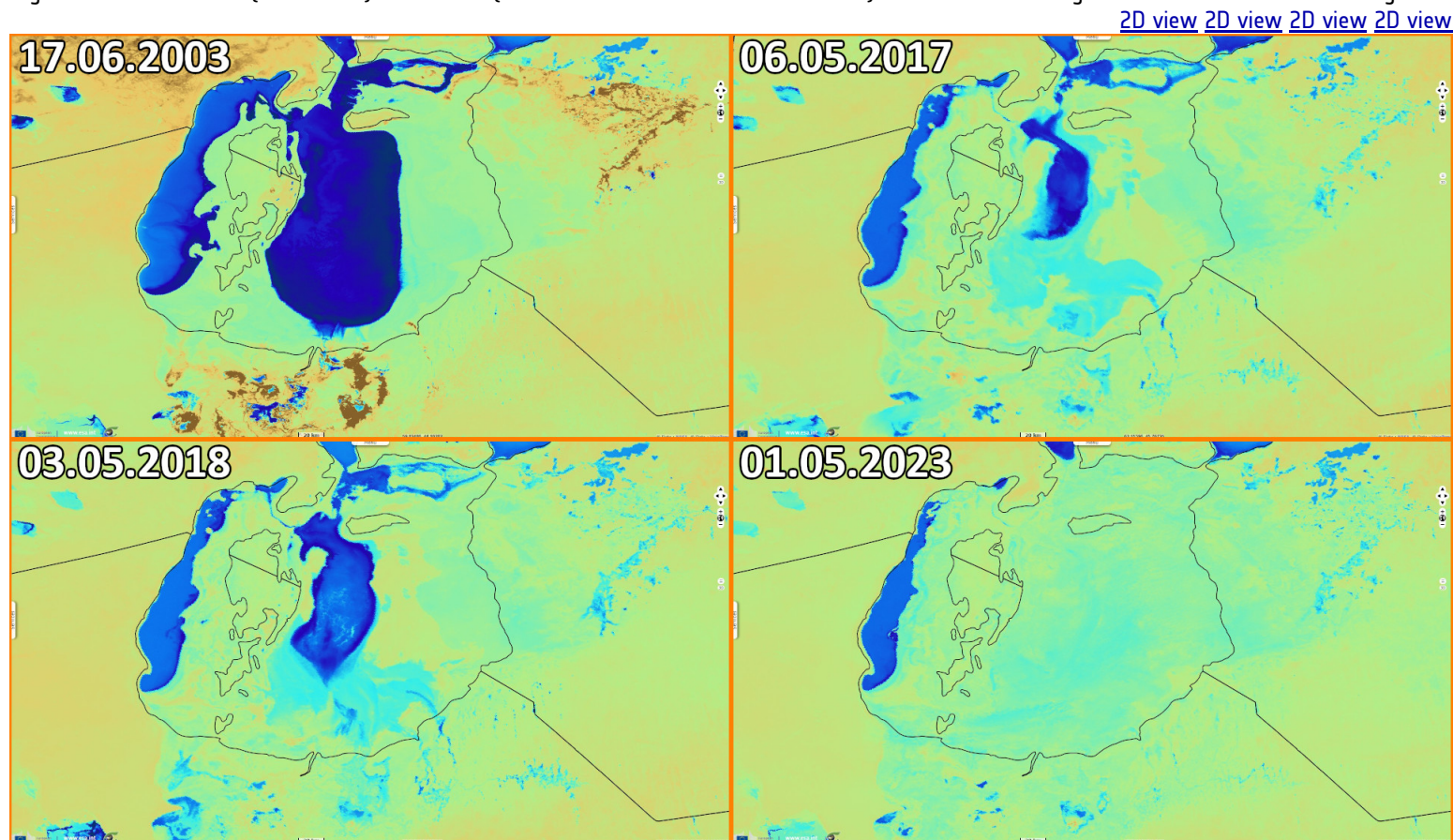


Fig. 2 - ENVISAT MERIS (17.06.2003) / S3 SLSTR (06.05.2017 / 03.05.2018 / 01.05.2023) - It began shrinking in the 60s and then divided in several small lobes.



River inflows were diverted to produce water-hungry monocultures of cotton and rice crops, causing the depletion of the Aral Sea from 67 000 km² to 7000 km²

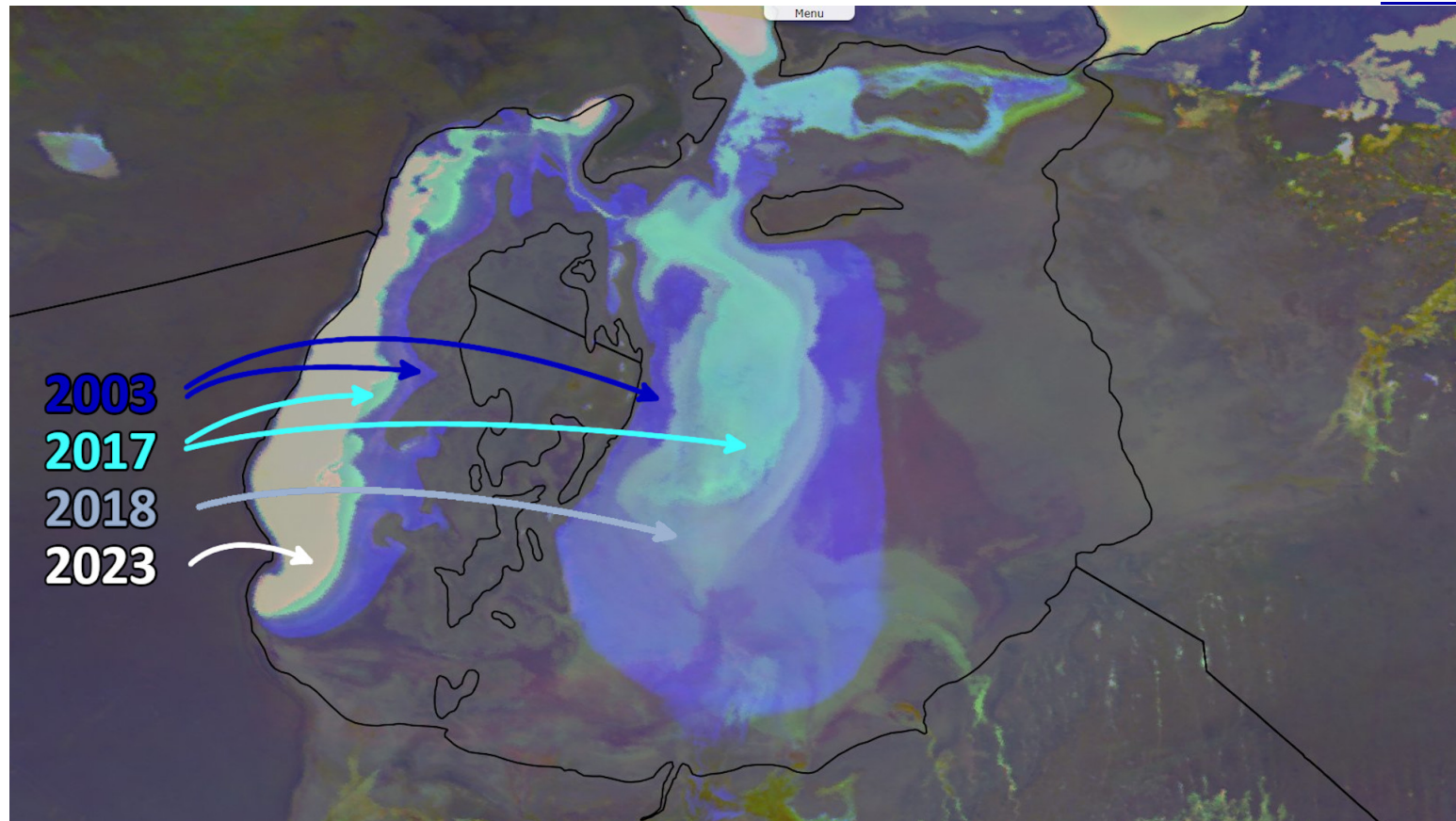
Fig. 3 - ENVISAT MERIS (17.06.2003) / S3 SLSTR (06.05.2017 / 03.05.2018 / 01.05.2023) - The Aral Sea enlarged in 2018 but then retracted again.



The enormous Soviet irrigation system was massively wasteful, crop rotation was not used, and huge quantities of pesticides and fertilizer were applied.













Fig. 4 - ENVISAT MERIS (17.06.2003) / S3 SLSTR (06.05.2017 / 03.05.2018 / 01.05.2023) - Massive irrigation depleted and degraded the soil and resulted in desertification.

[2D view](#)



The runoff from the fields washed these chemicals into the shrinking sea. The increasing amount into smaller water created severe pollution and health problems. This desertification resulted in wind-borne toxic dust that spread quite widely. As wildlife disappeared, so did the fishing industry.

*The views expressed herein can in no way be taken to reflect the official opinion of the European Space Agency or the European Union.
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