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# Temporal trends in to the Black Sea Cold Intermediate Layer

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This paper presents a *detrending* method that eliminates the potential bias in current spatial interpolation products caused by measurements unevenly distributed in time. The method estimates a trend component in addition to the spatial structure and has been implemented within the *Data Interpolating Variational Analysis* (DIVA) analysis tool. It is used to produce monthly climatologies of the Black Sea Cold Intermediate Layer (CIL) cold content while recognizing its seasonal and inter-annual variability.

The analysis of the inter-annual trends, given as a by-product of the method, allows one to relate the CIL inter-annual variability to the cumulated air temperature and wind curl anomalies, resolving 79% of its variation and providing a partial (29%) predictive ability for the CIL intensity in the year to come.