# New Mediterranean Sea Surface Temperature Re-Analysis (1982-2012): development, assessment and trend analysis

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The long time series of reprocessed Pathfinder V5.2 (PFV52) AVHRR data from 1982 to 2012 has been used to provide daily gap-free sea surface temperature (SST) maps (L4) at the original PFV52 resolution (4 km x 4 km spatial resolution). The interpolation of PFV52 data to L4 has been carried out by adapting CNR-ISAC-GOS near-real-time (NRT) SST processing chain (Buongiorno Nardelli et al., 2013) to the PFV52 dataset, and choosing a new covariance model. This new time series extend and improve previous reprocessed L4 Mediterranean SST datasets based on 1985-2005 Pathfinder V4 (Marullo et al., 2007) and largely used by Mediterranean science community. This new Mediterranean reprocessed time series has been validated using all the available in situ observations (drifter, CTD, XBT, ARGO floats) in order to quantify the product accuracy and to exclude any possibility of spurious trends. The time series analysis reveals a warming Mediterranean SST in the last 30 years with a mean SST trend of the order of $0.05°$ K/yr. The pattern of the SST trend reveals a strong eastward increasing surface warming with a maximum SST trend found south of Island of Crete.