

Exploiting high frequency monitoring and satellite imagery for assessing chlorophyll-a dynamics in a shallow eutrophic lake

**Monica Pinardi,¹ Gary Free,¹ Beatrice Lotto,² Nicola Ghirardi,^{1,2} Marco Bartoli,^{2,3}
Mariano Bresciani^{1*}**

¹Institute for Electromagnetic Sensing of the Environment, National Research Council of Italy, via Bassini 15, 20133 Milan, Italy

²Department of Chemistry, Life Sciences and Environmental Sustainability, University of Parma, Parco Area delle Scienze 33/A, 43124 Parma, Italy

³Marine Science and Technology Center of Klaipeda University, LT-92294 Klaipeda, Lithuania

***Corresponding author:** bresciani.m@irea.cnr.it

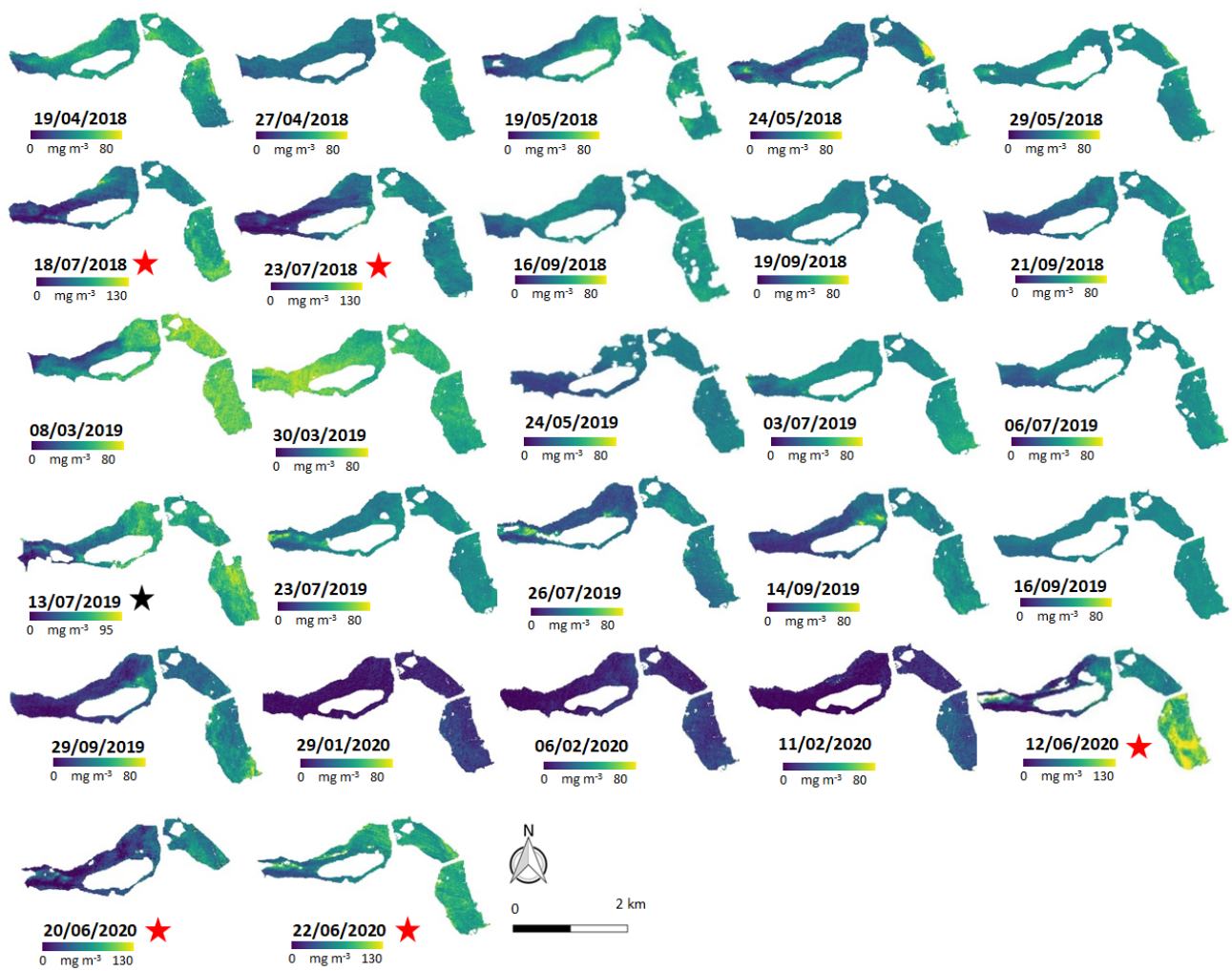


Fig. 1. Maps of Chl-a concentration ($0\text{-}80 \text{ mg m}^{-3}$) retrieved by satellite data on 27 occasions between 16/04/2018 and 30/06/2020 for the Mantua lakes system. Maps with a different Chl-a concentration range are identified with a star: red for Chl-a concentration between 0 and 130 mg m^{-3} and black for the range $0\text{-}95 \text{ mg m}^{-3}$.

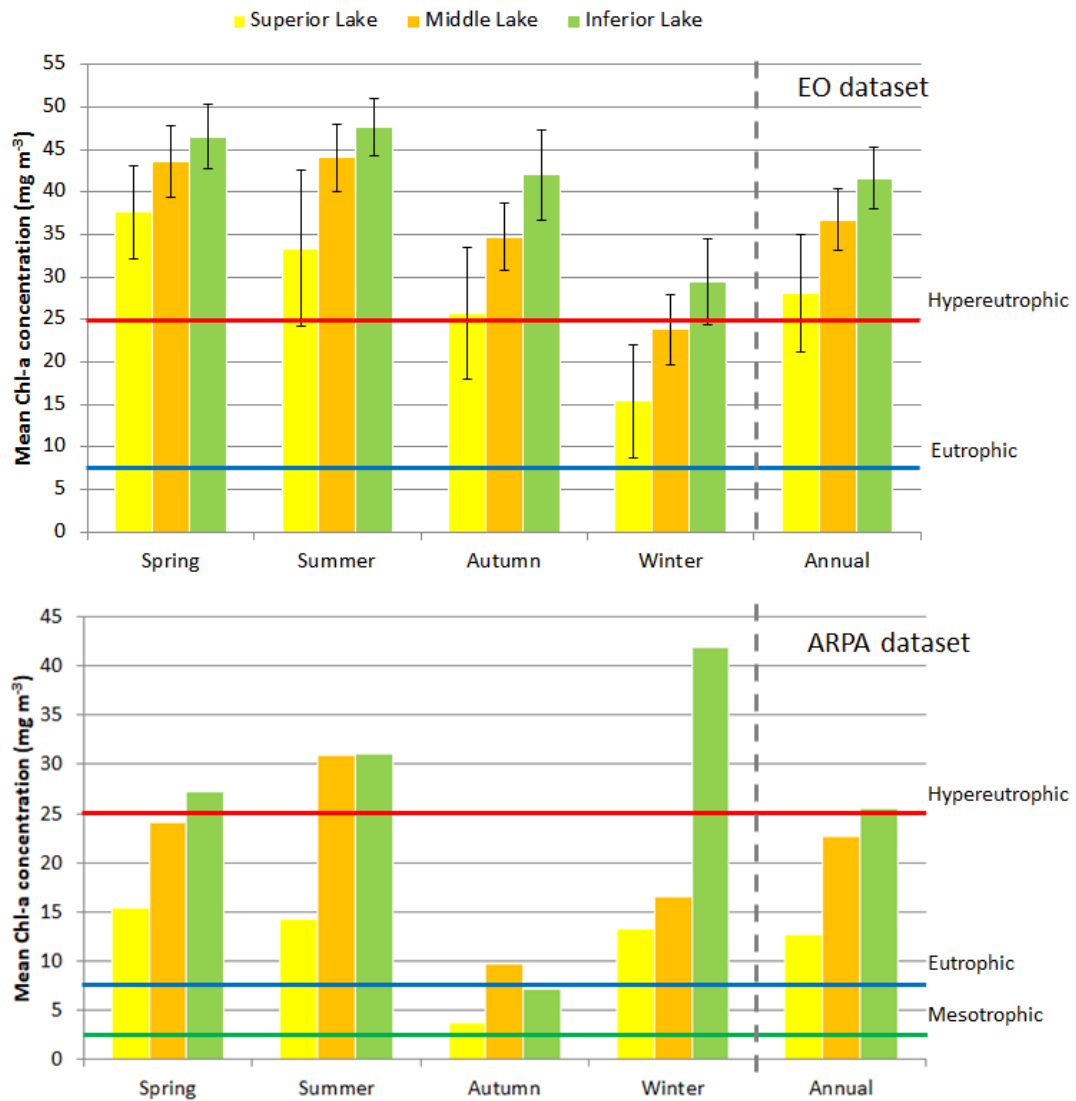


Fig. 2. Histograms of seasonal and annual mean Chl-a concentration in the Superior, Middle and Inferior lakes using 27 satellite maps (from April 2018 to June 2020, upper graph) and ARPA bimonthly *in situ* data (2018-2019, lower graph). The classification of the trophic status according to OECD (1982) is also reported.