WATERCOLOURS

Computation of climatology and operational high-resolution Chlorophyll-a and Total Suspended Matter products from satellite data

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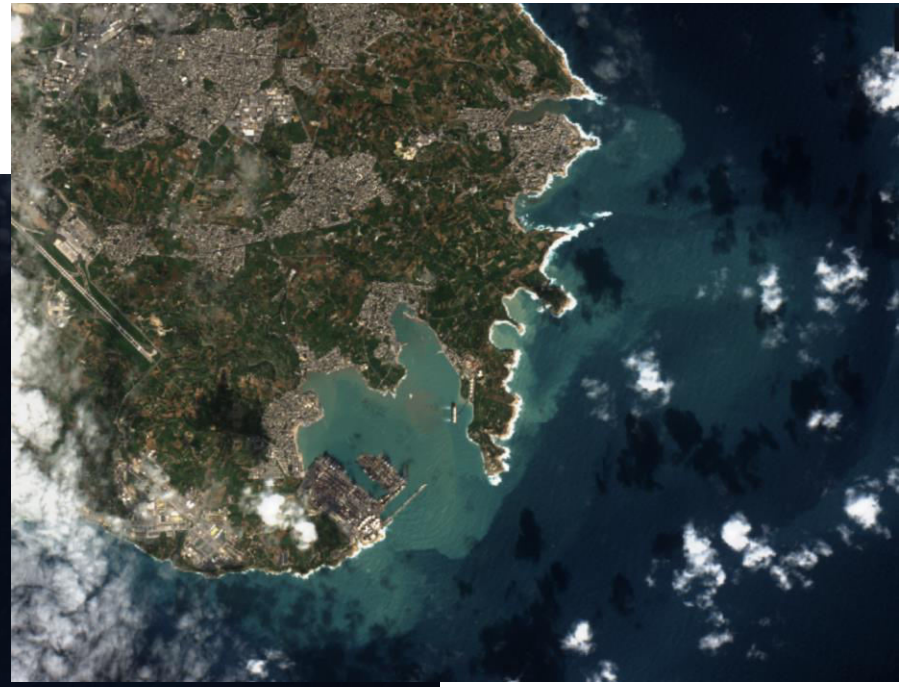
STREAM Stakeholder meeting
15th February 2023

L-Università ta' Malta

Xjenza The Malta Council for Science & Technology

NATIONAL SPACE FUND

WaterColours



Aims

Phase 1

- November 2019 – October 2020
- Computation of climatology of Chlorophyll-a
  and Total Suspended Matter products from CoastColour satellite data

Phase 2

- November 2020 – December 2021
- Operational system to compute high resolution satellite data products
  at an unprecedented quality and resolution using Sentinel 3A and 3B

Phase 1 | Climatology

Considered three datasets:

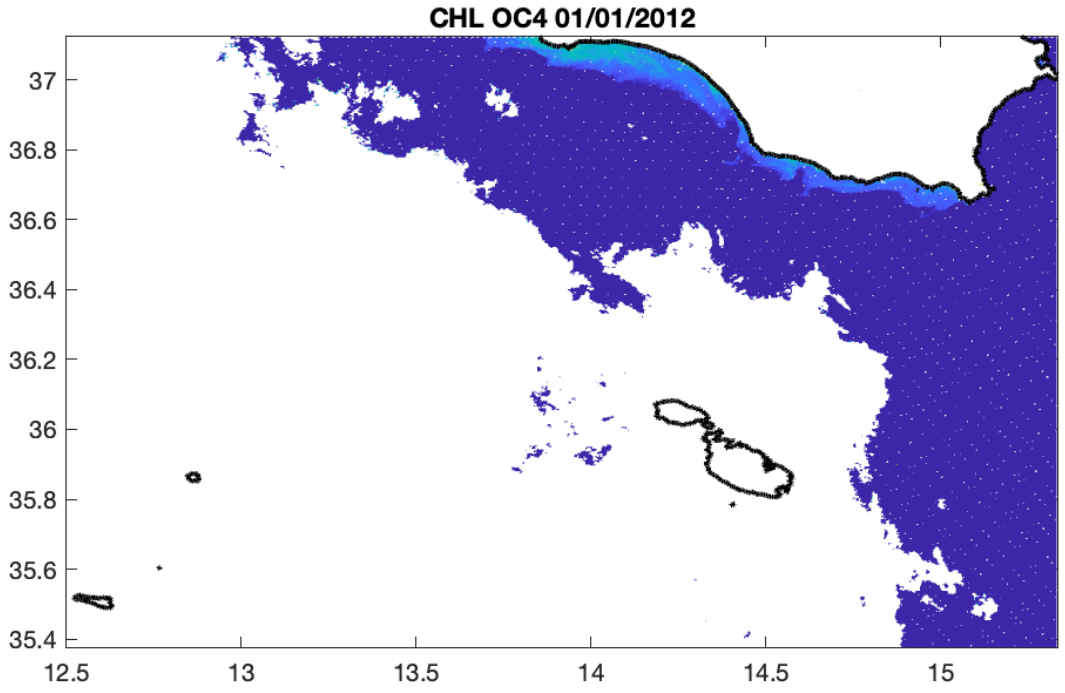
- Level 2 MERIS data from CoastColour
  not projected, consists of large gaps and extreme values

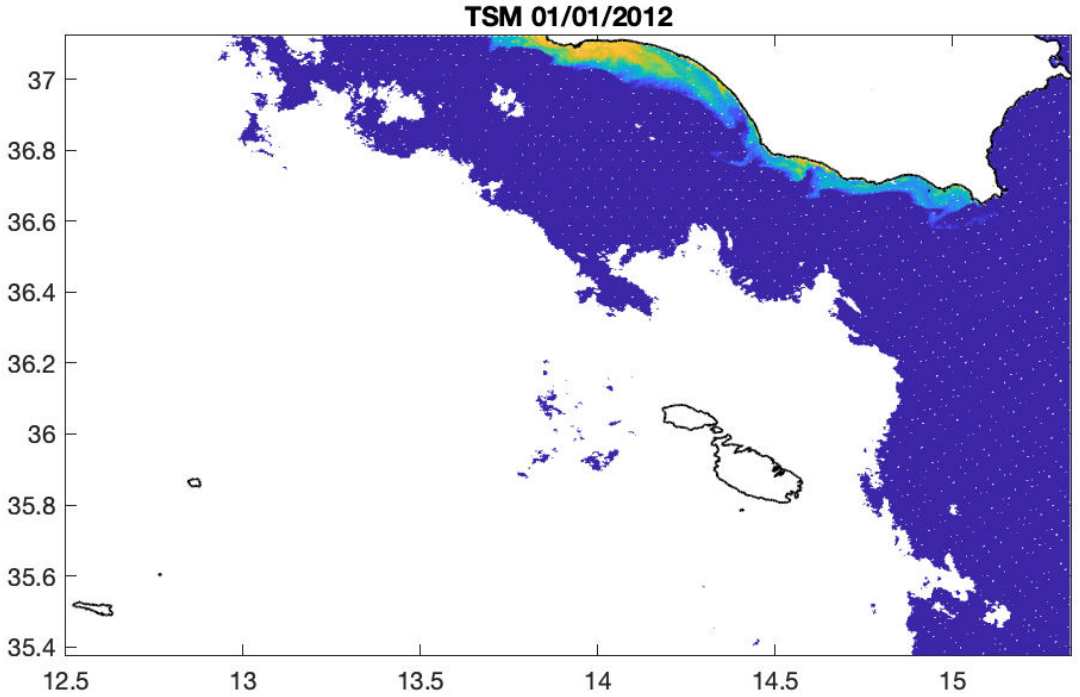
- Satellite product on COPERNICUS
  reprocessed data at a coarse resolution of 4km

- **Level 3 MERIS data from CoastColour**
  between 17 May 2002 and 08 April 2012 with a resolution of 300m

Phase 1 | Climatology

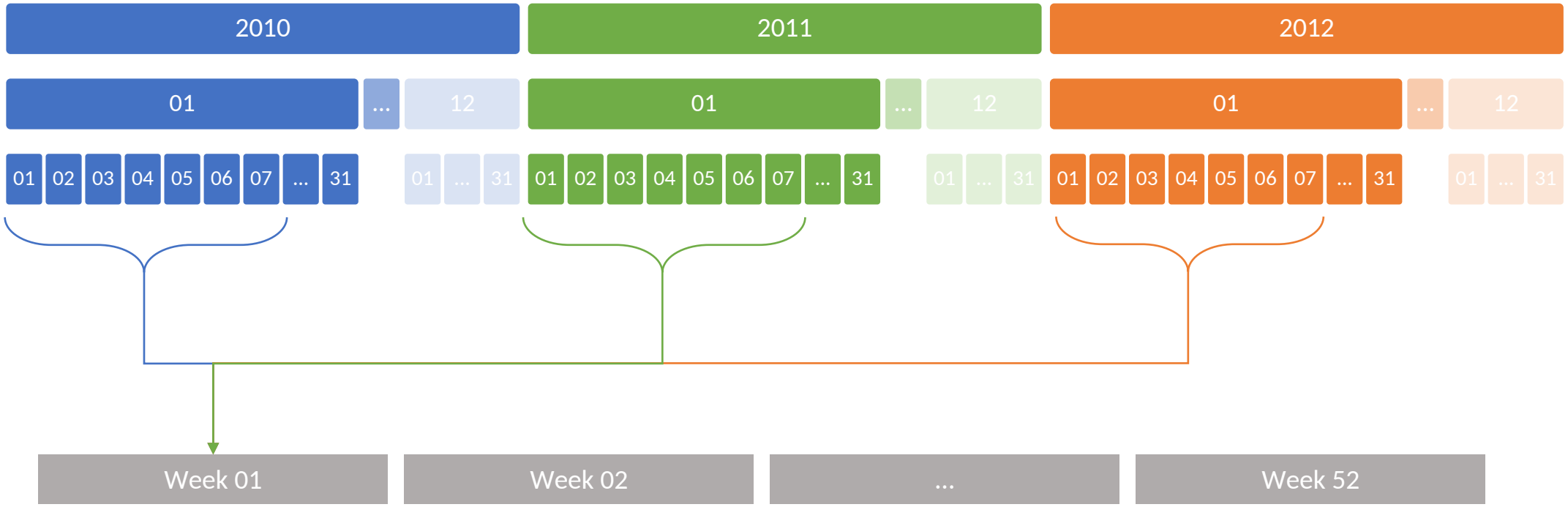
RAW Data





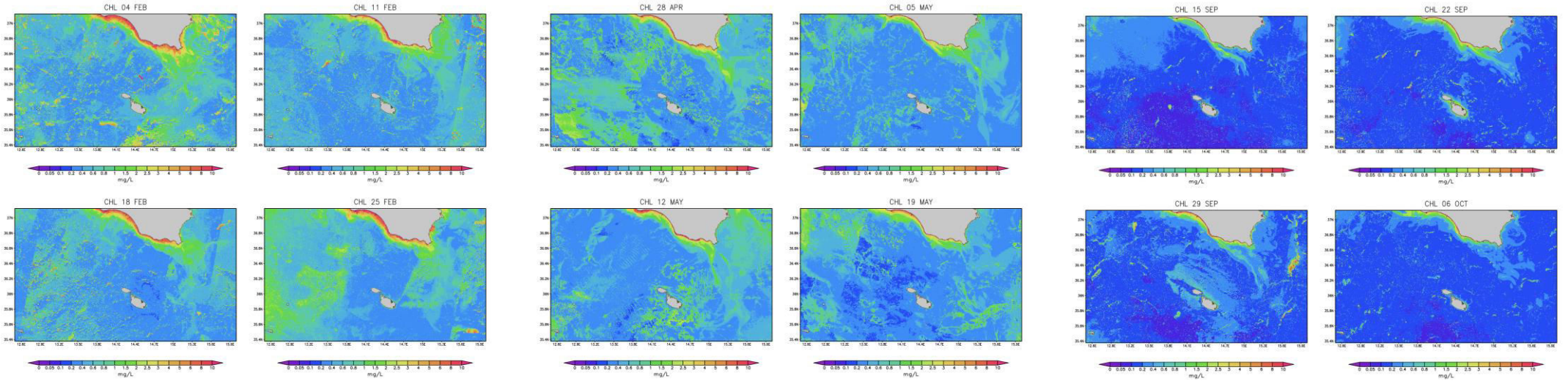
Phase 1 | Climatology

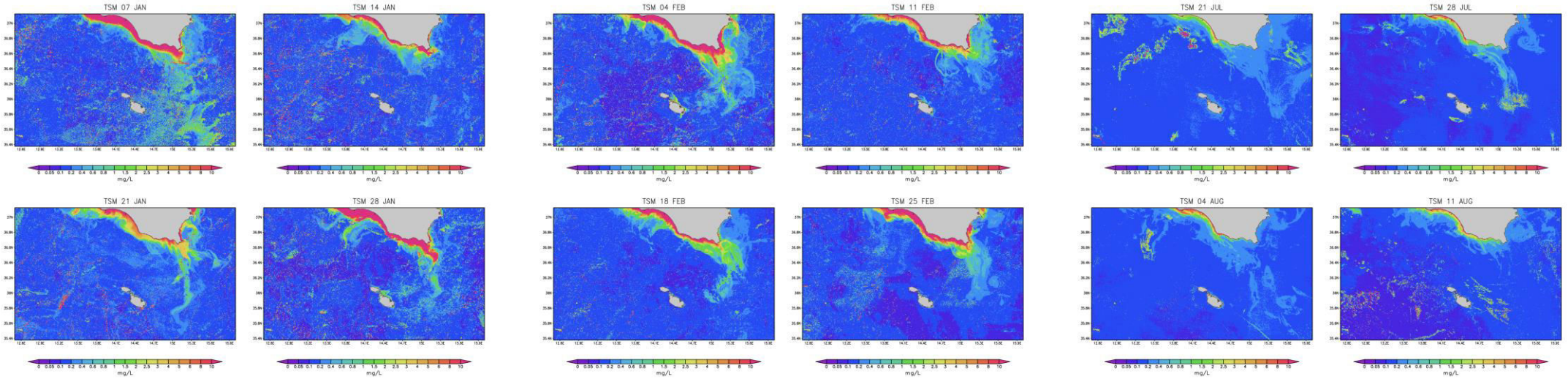
Weekly Data



Phase 1 | Climatology

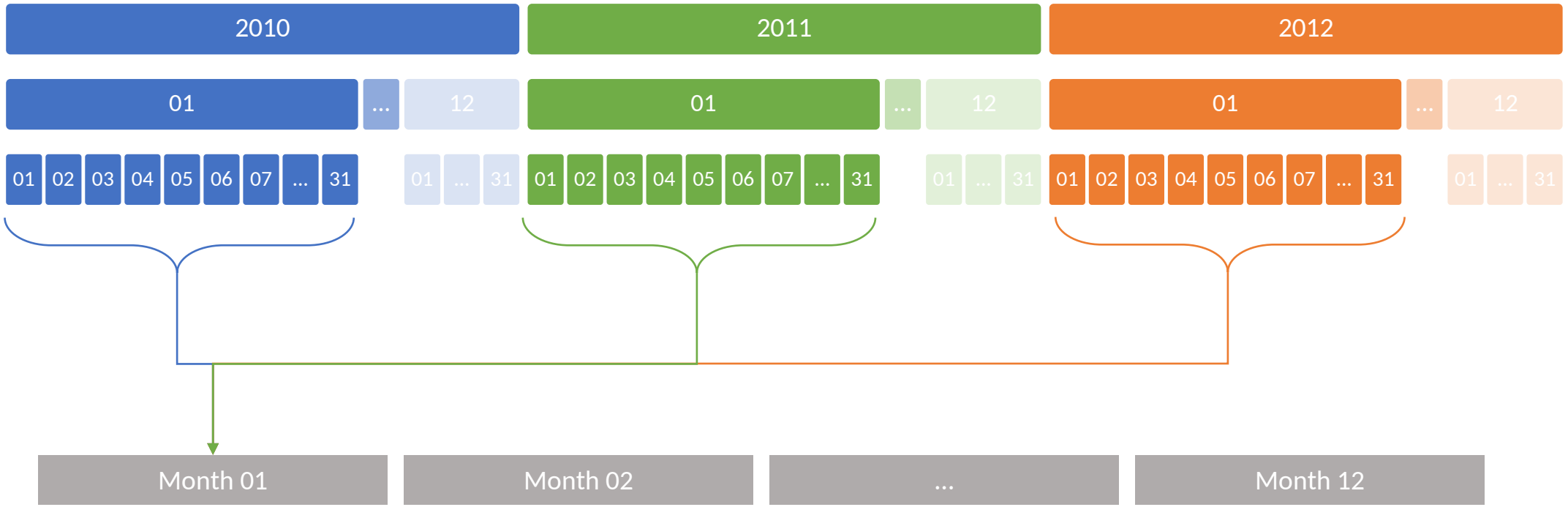
Weekly Data





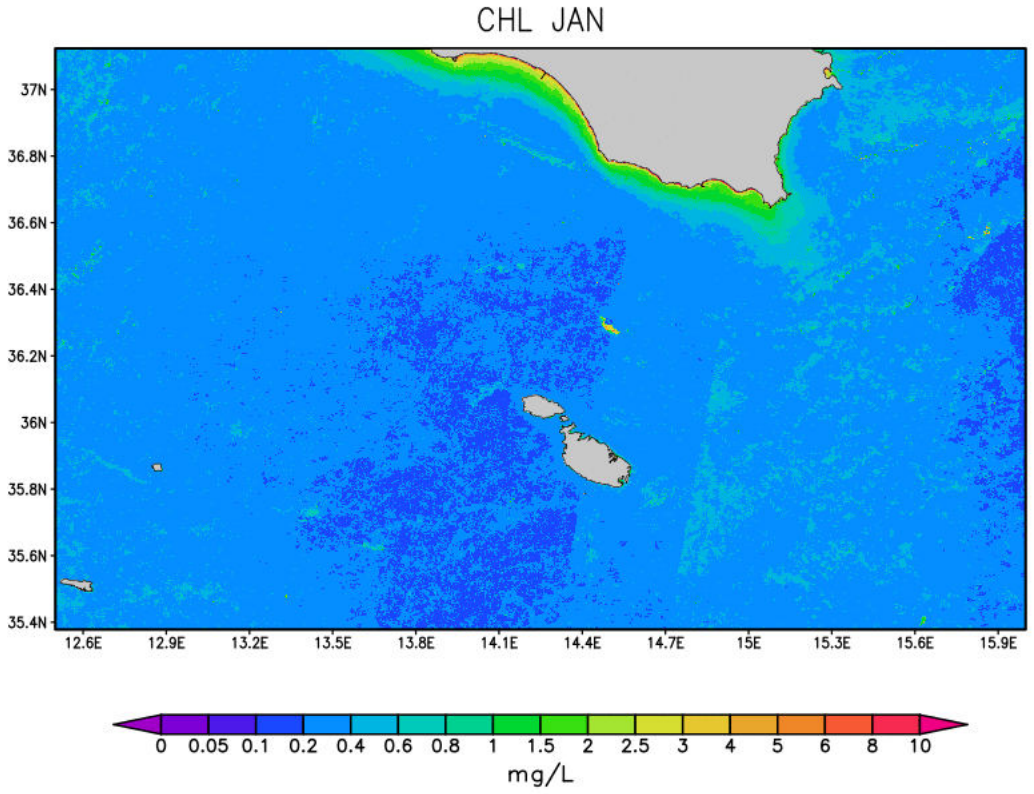
Phase 1 | Climatology

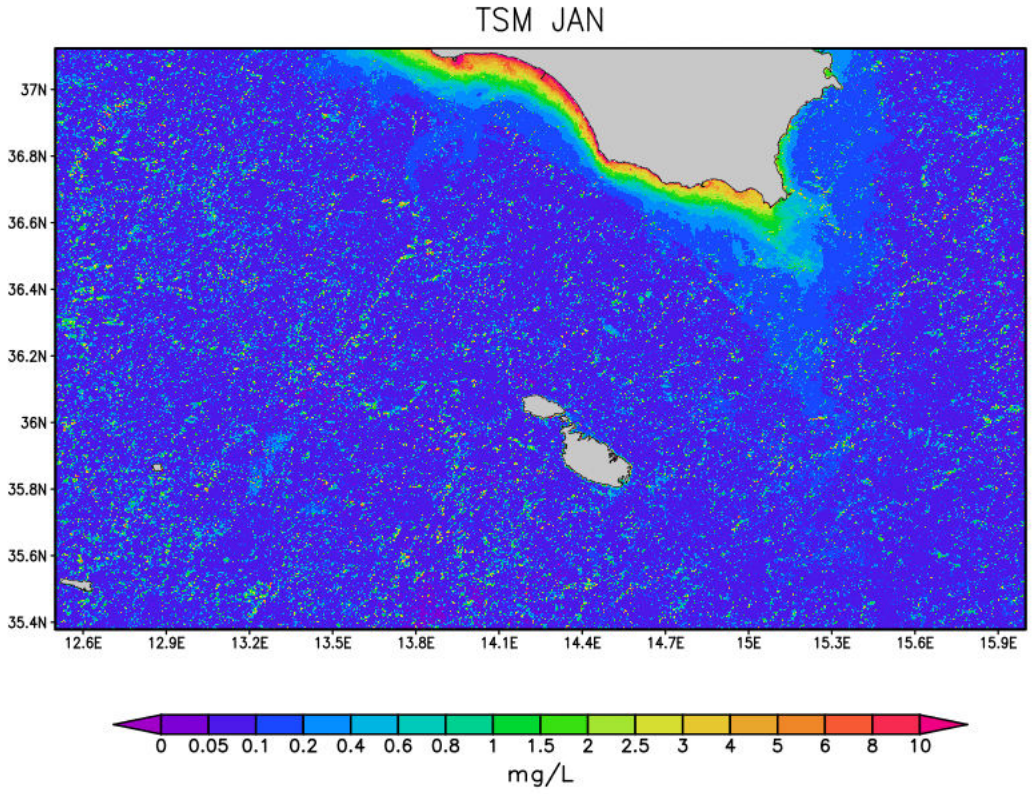
Monthly Data



Phase 1 | Climatology

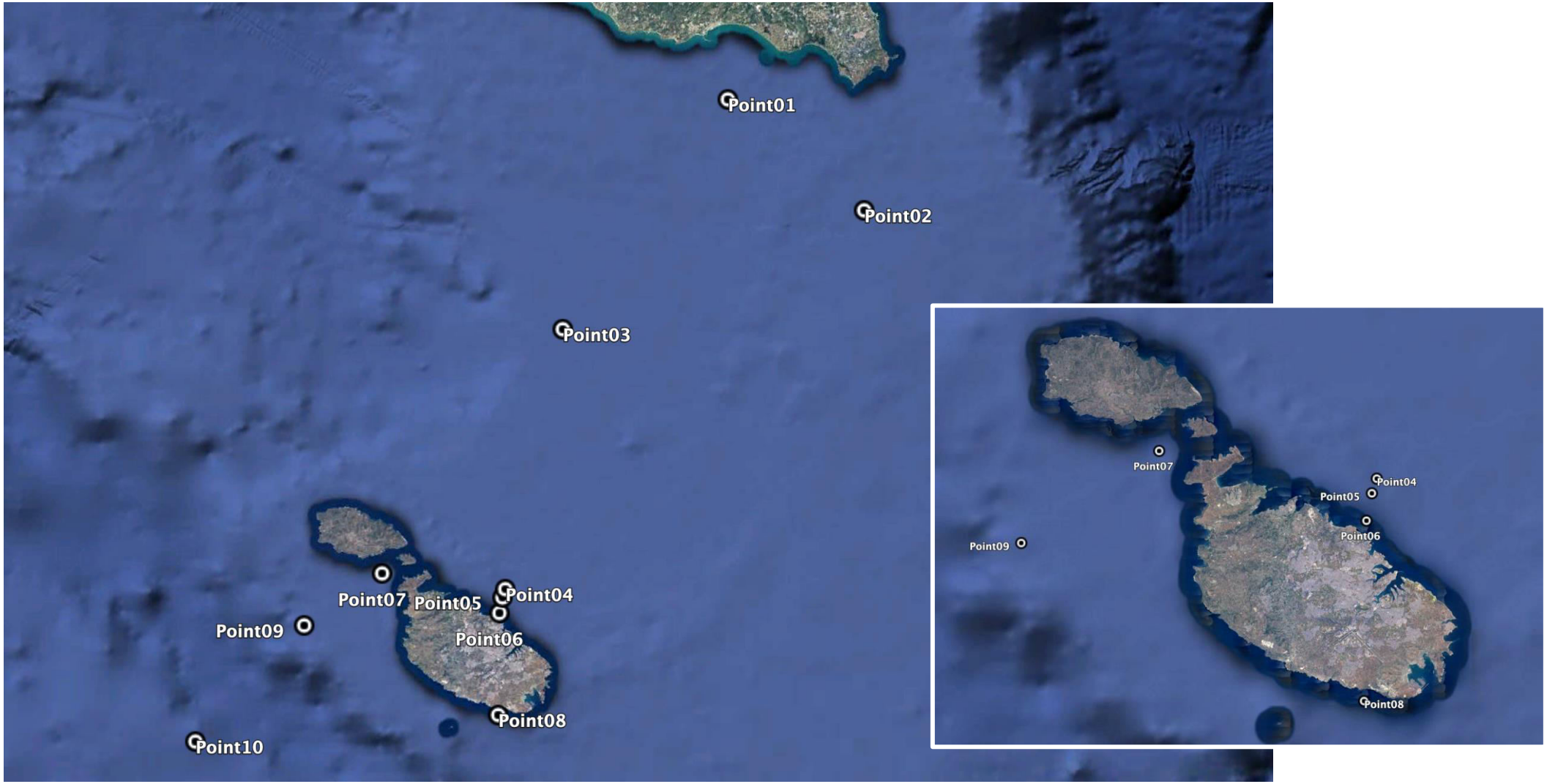
Monthly Data





Phase 1 | Climatology

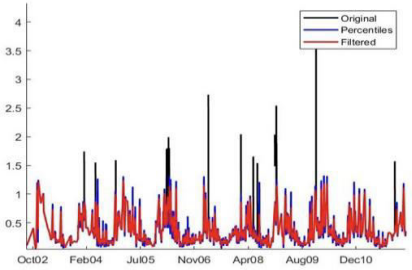
Spatial Trends
at Selected Points

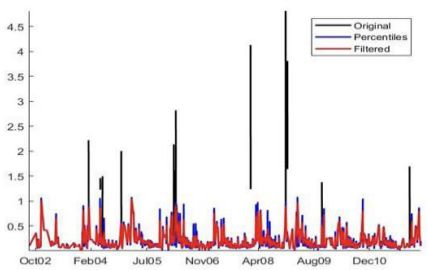


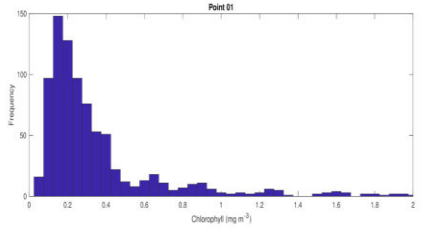
Phase 1 | Climatology

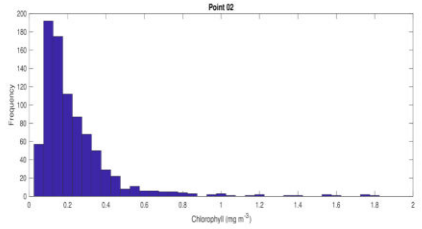
Spatial Trends
at Selected Points

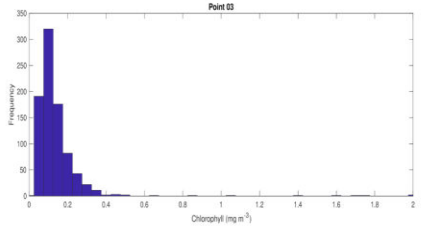
Chlorophyll-a

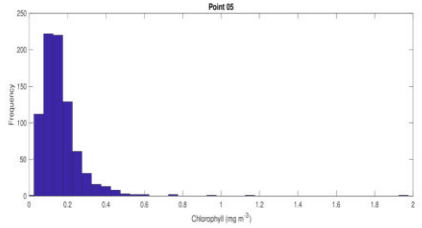




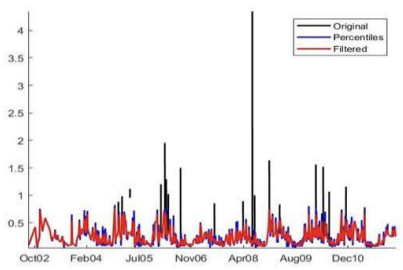


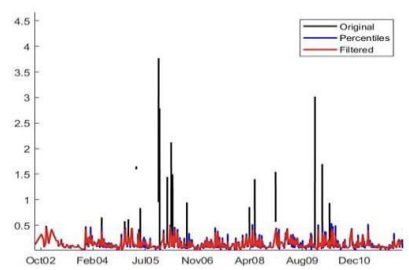


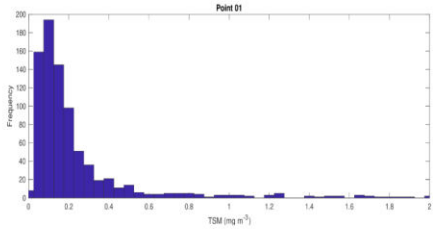


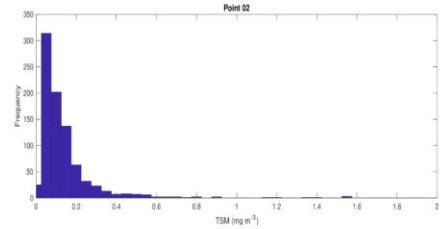


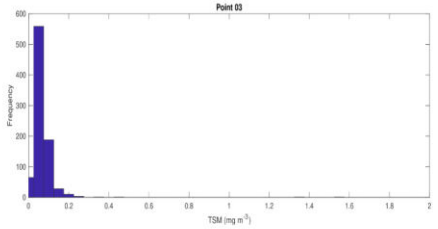
Total Suspended Matter

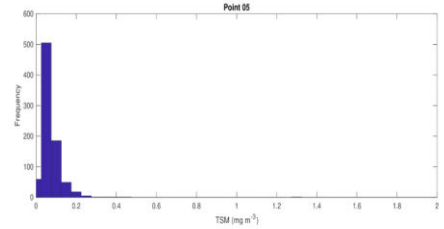






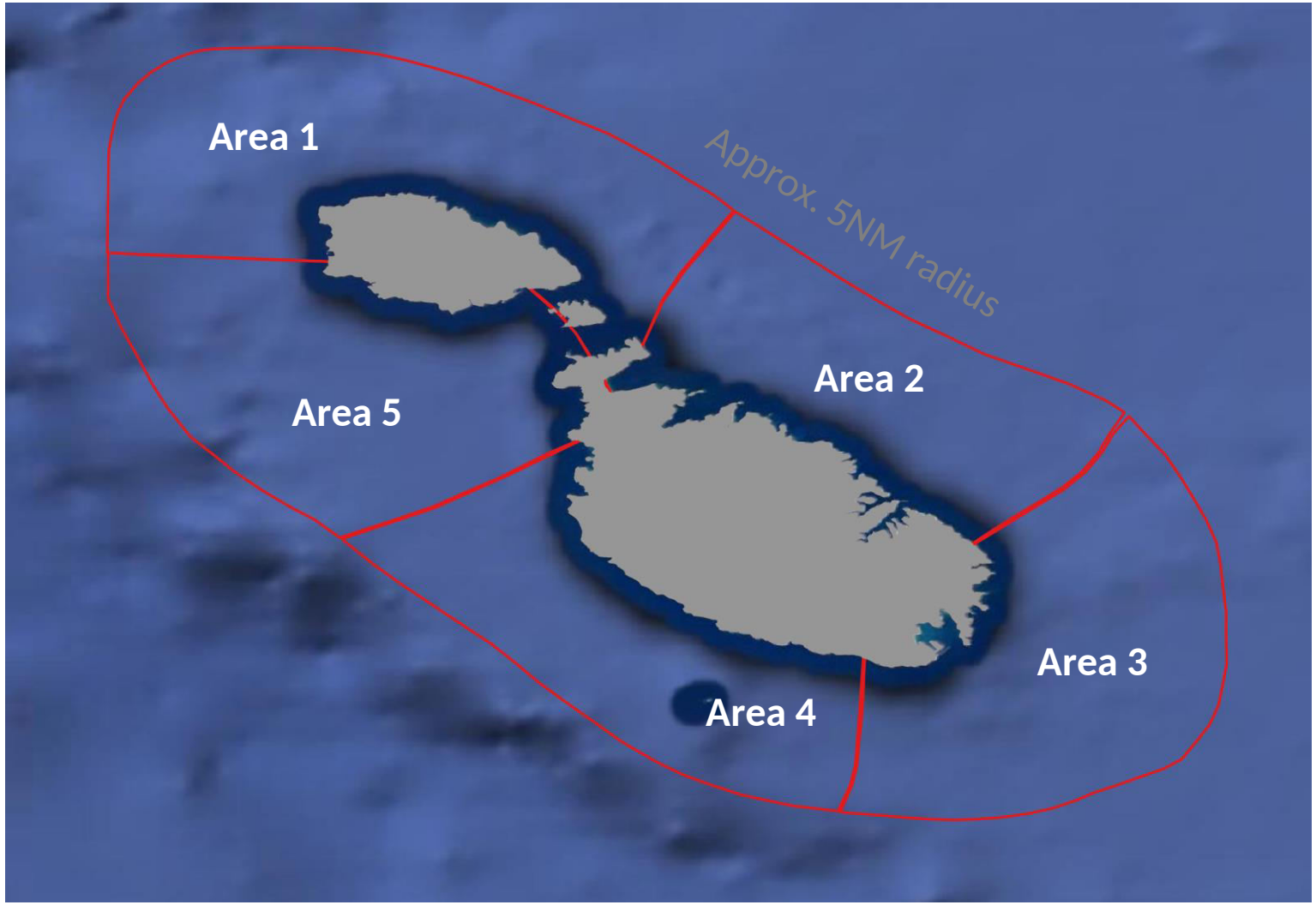






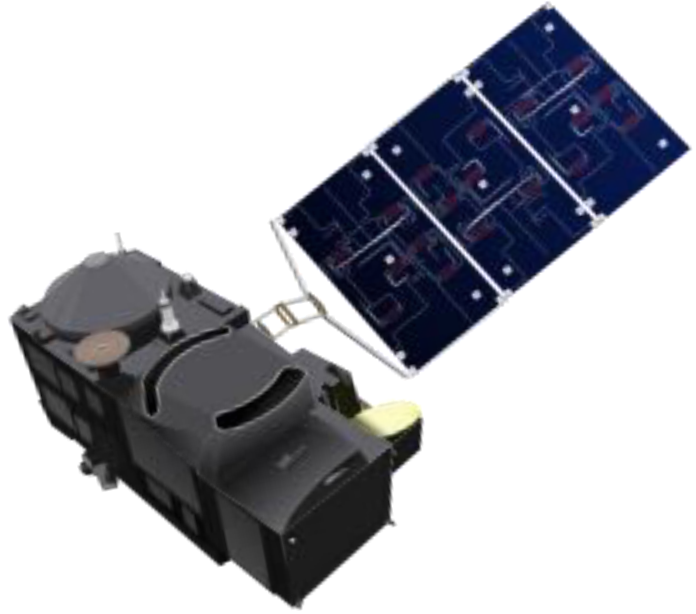
Phase 1 | Climatology

90th Percentiles



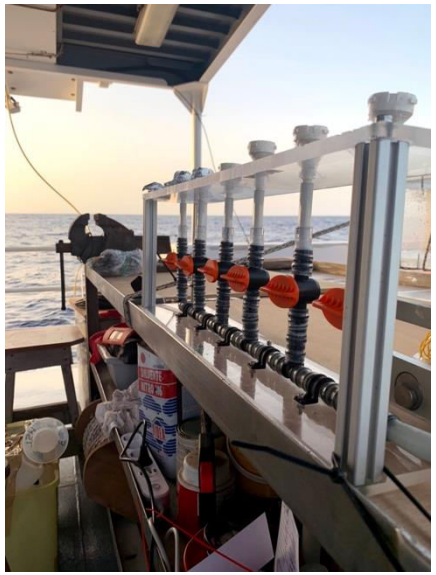
Phase 2 | Operational System

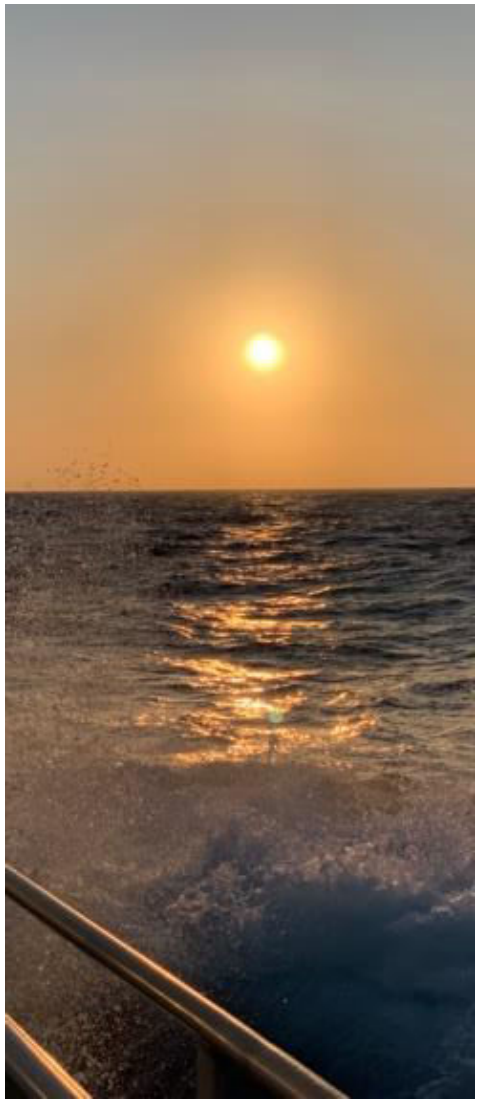
- Sentinel 3A and Sentinel 3B data at 300m resolution.
- Operational codes download and process data in NRT.
- Regional algorithm for the calculation of CHL and TSM products.
- Operational statistics on the computed datasets.
- Online visualisation of products
  and comparison with climatology baselines.

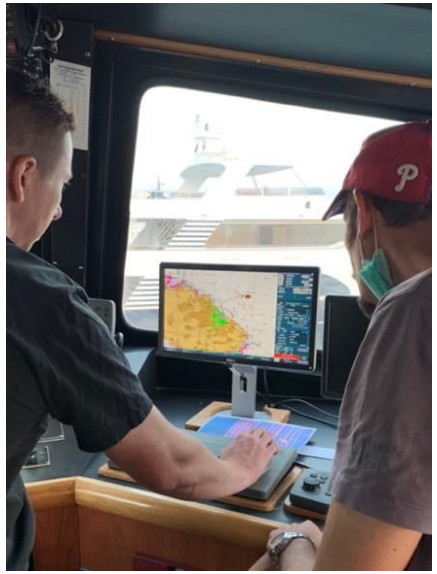


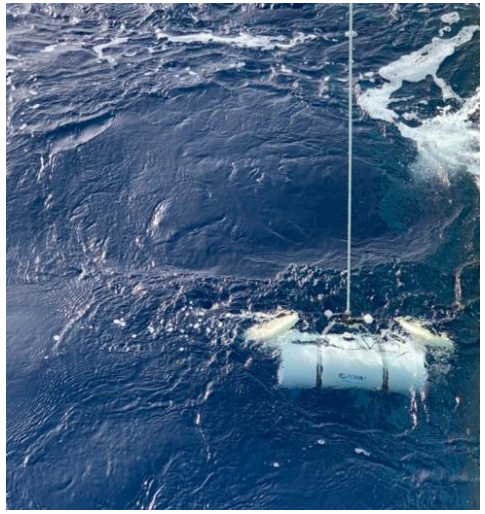
Phase 2 | Research Survey

Fieldwork
July 2021









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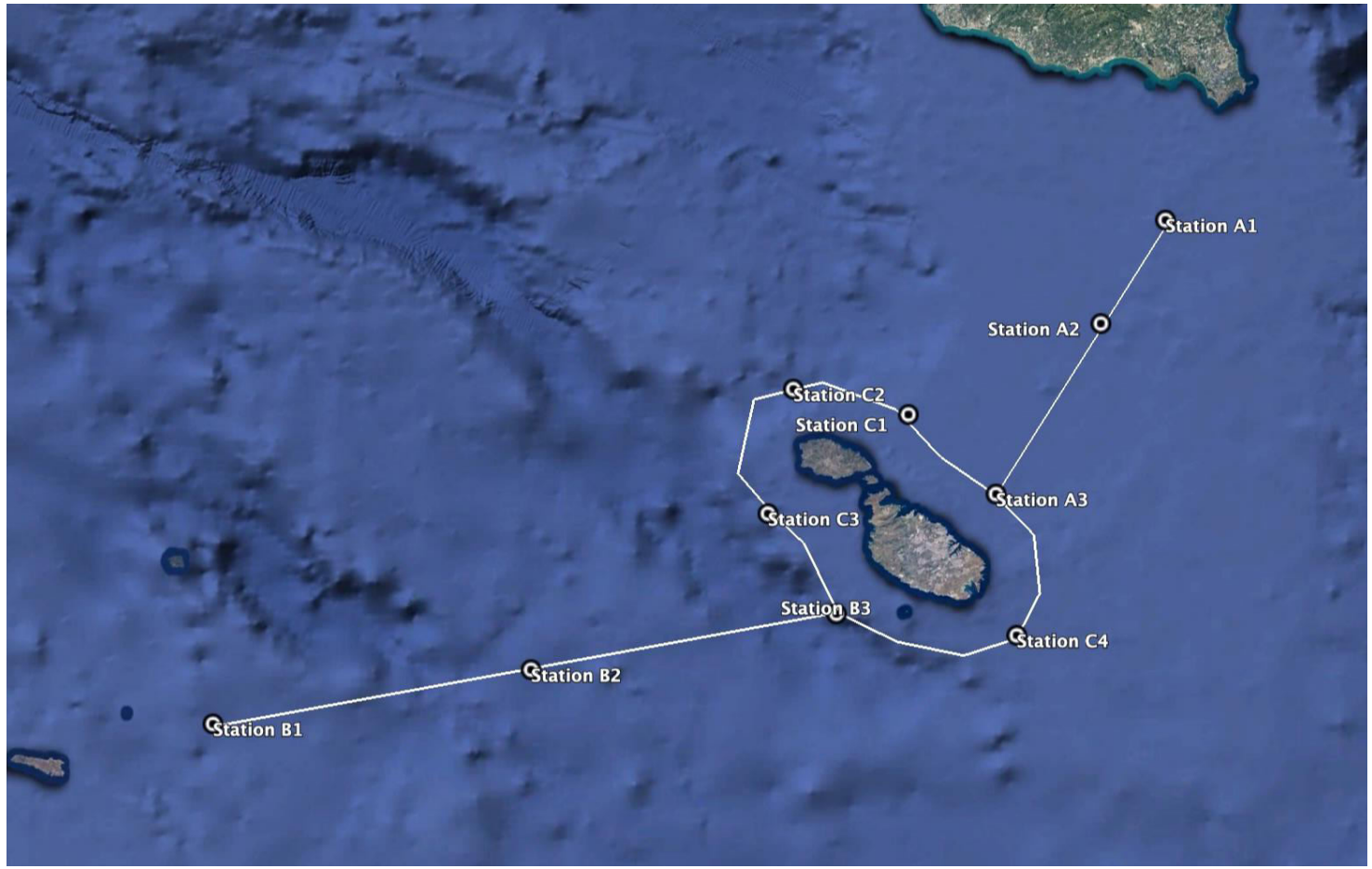
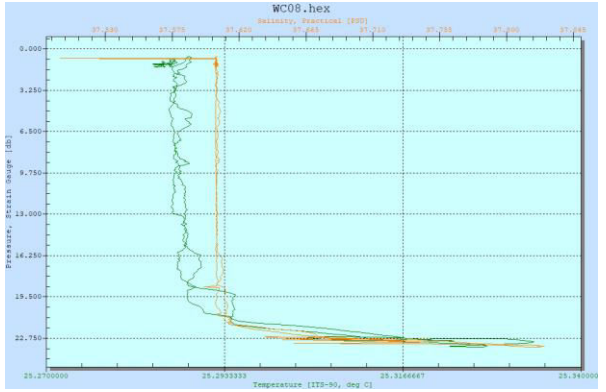
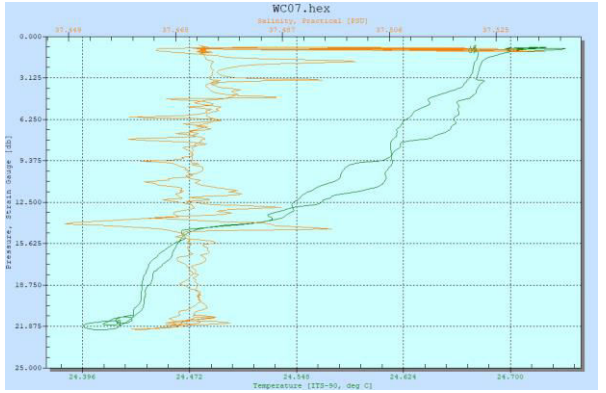
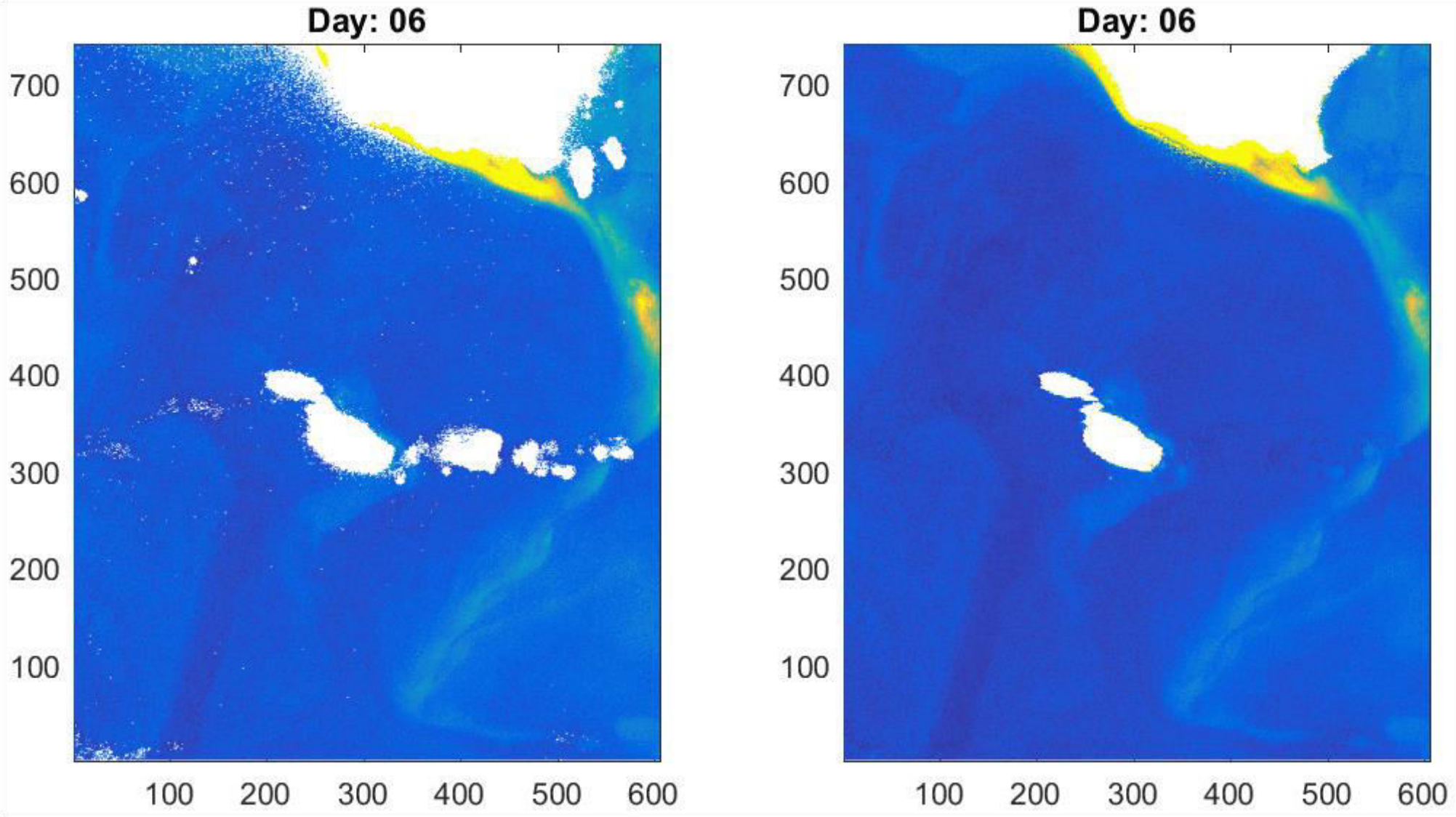




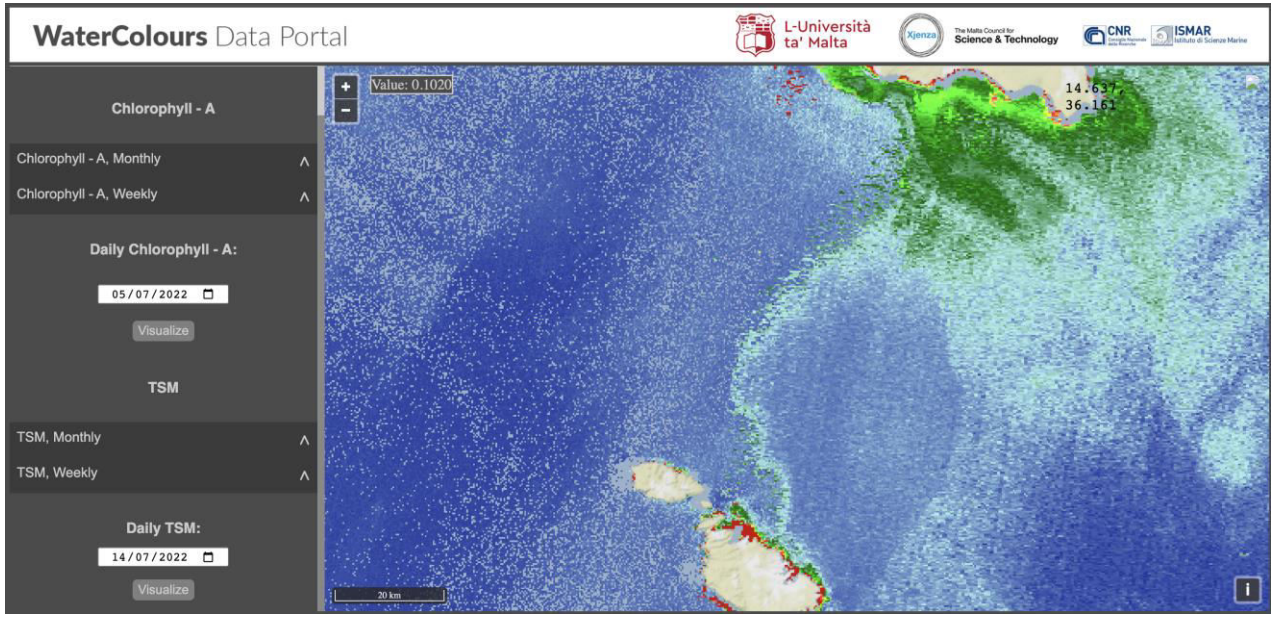


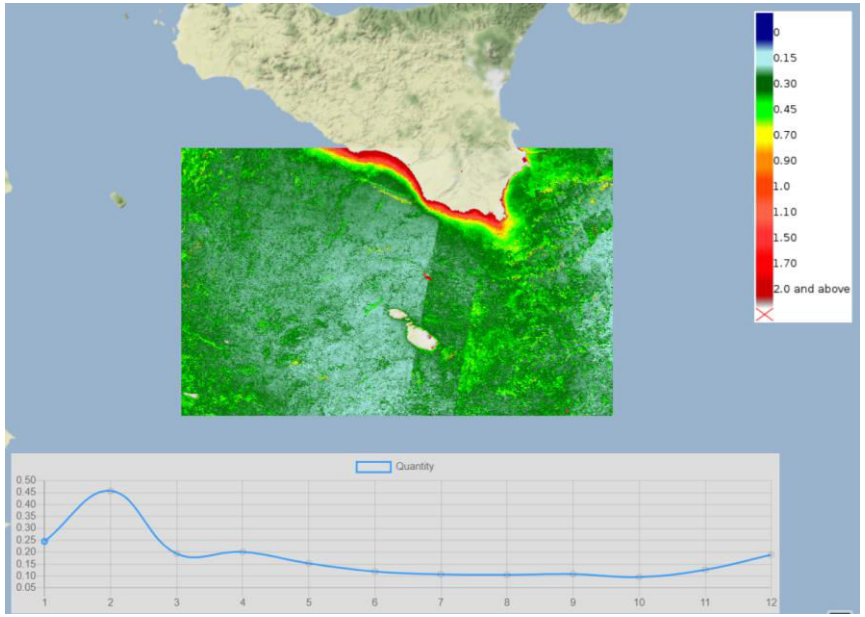
Phase 2 | Operational System Gap Filling



Online Interface

watercolours.capemalta.net





Outreach


International Geoscience and
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In 2021 a joint initiative of Belgium and The Netherlands
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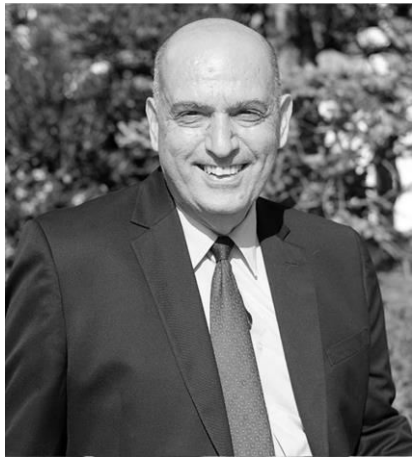
The Team

Adam Gauci



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