

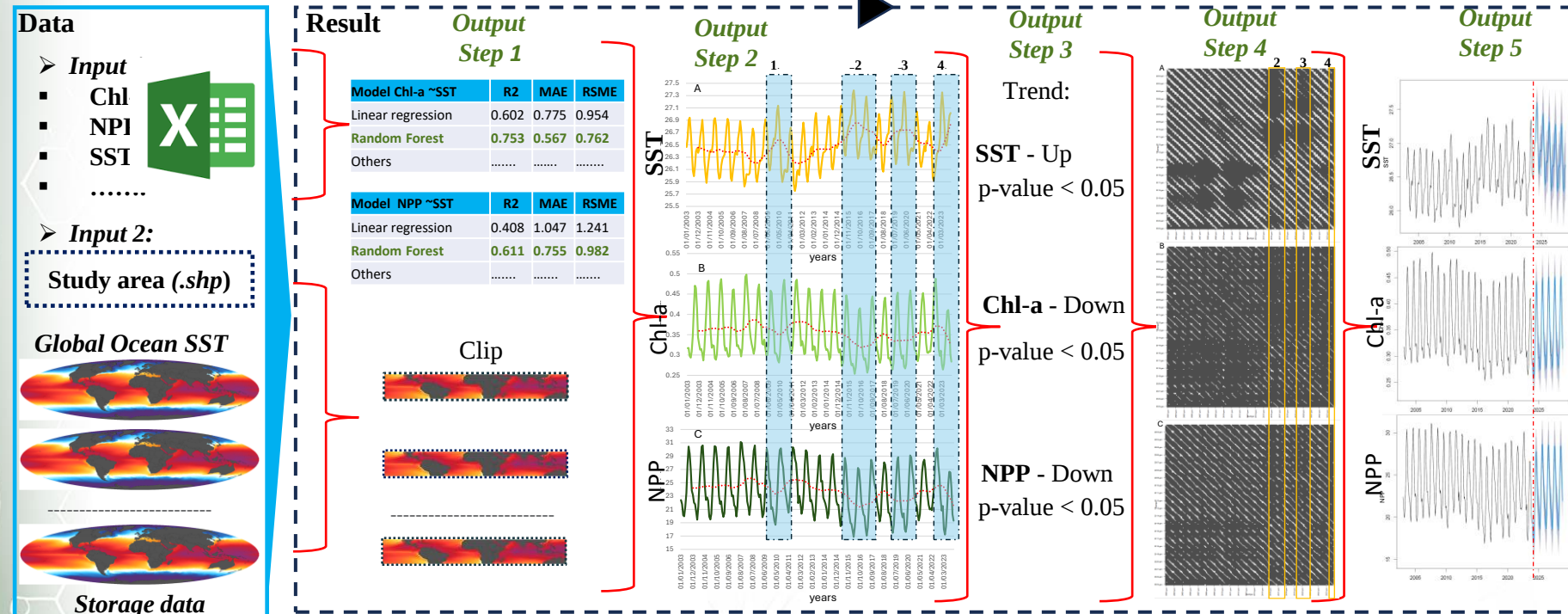
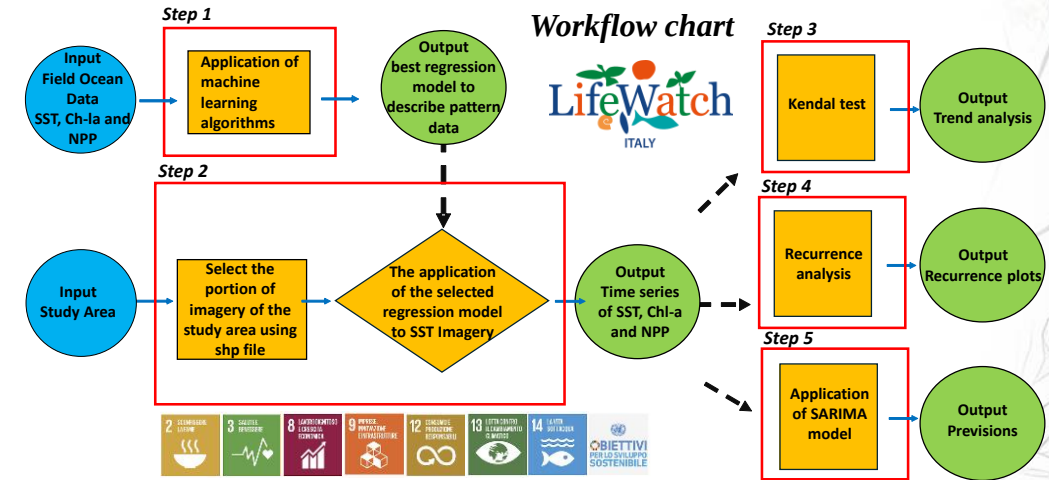
Analytical Workflow to Study Ocean Production Response to Global Warming

Context: Phytoplankton is highly sensitive to temperature, making it vulnerable to the effects of global warming with impact on biomass production and on the ability of the ocean to act as a sink for CO₂.

Aim of the workflow: Investigate the variation of chlorophyll-a (Chl-a) as a proxy for phytoplankton biomass and Net Primary Production (NPP) as an indicator of biomass production rate, in response to changes in Sea Surface Temperature (SST).

Method: The workflow integrates field measurements with remote sensing imagery.

Case study: Equatorial zone, where ocean warming could have negative impact.



Discussion

The system showed:

- 1) Short-term dynamics, which may result from cycle perturbation events such as ENSO events (2-3-4-recurrence plots);
- 1) Long-term dynamics from 2003 to 2023, which may be driven by global warming (trend Analysis).

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