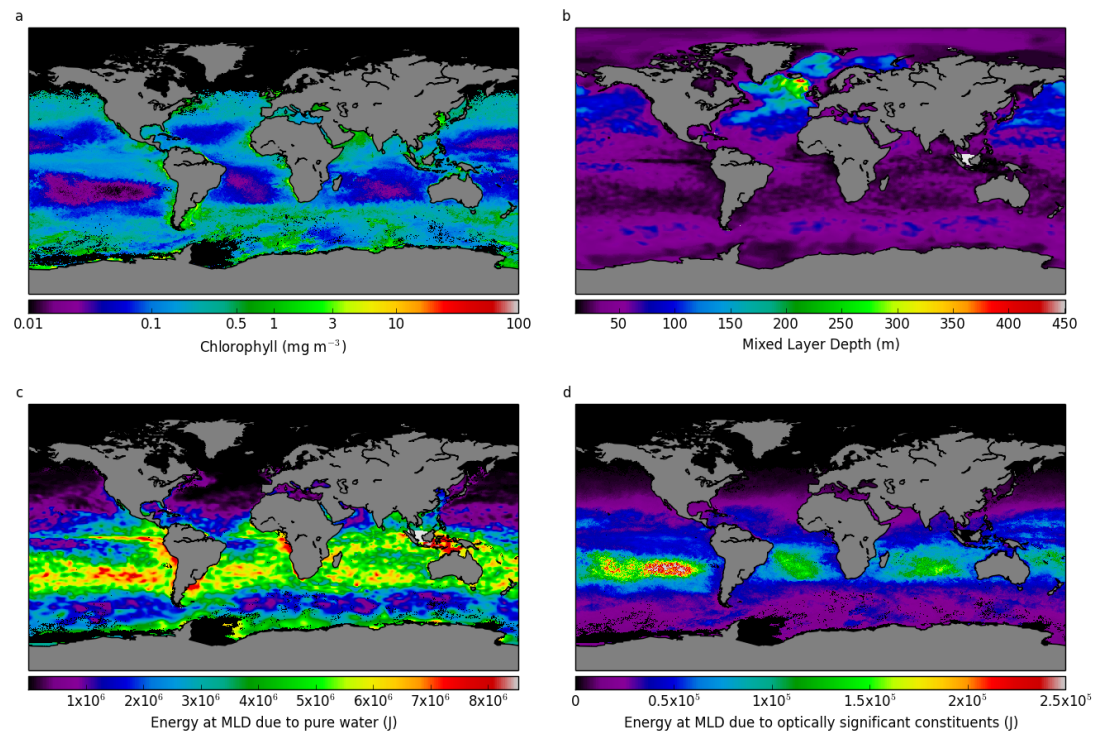


# PML

Plymouth Marine  
Laboratory

Listen to the ocean



## PML Progress: Ocean Optics and Heat Flux

Hayley Evers-King and Shubha Sathyendranath

## Contributions to OHF project

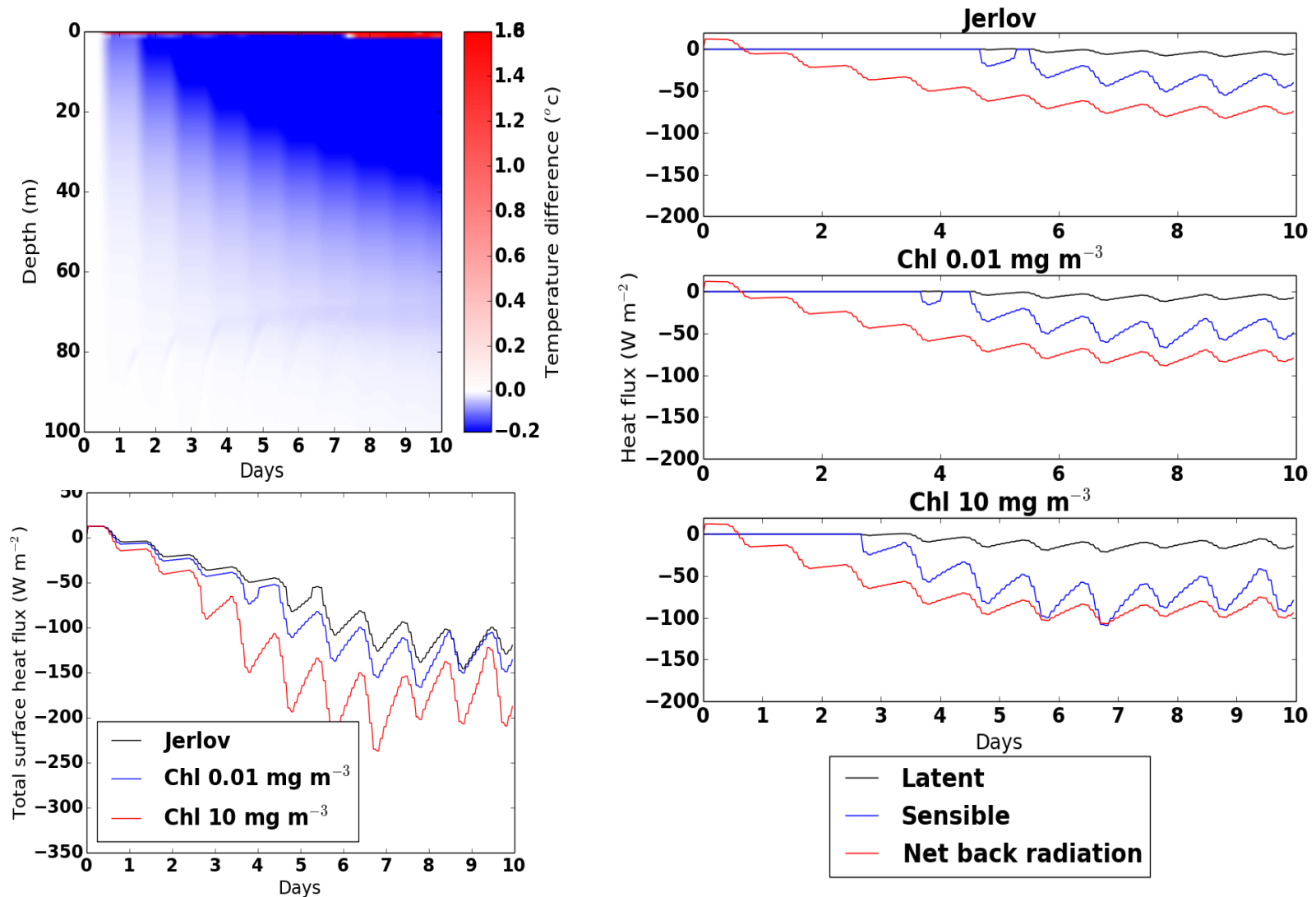
- Work Package 3
- Deliverable D3.1 Flux Assessment Report
- Covering:
  - Sensitivity of oceanic heat budget in mixed layer, diurnal SST, air sea fluxes to optical variability.
  - Two main approaches, both using optical model:
    - Sensitivity study using idealised experiments in GOTM 1D turbulence model
    - Calculation of light penetration to mixed layer using CCI data
- Outputs:
  - Content for Flux assessment report
    - Literature background, method summary, results of sensitivity experiments, example plots of CCI based products.
  - Processing of CCI archive to produce light penetration at MLD.

## Since last meeting...

- Core of image processing complete – 1998 to 2005.
  - Reformatting to add any additional meta-data/flags necessary.
  - Add other products calculated from these?
  - Provide scripts for others to do that?
- Content for report
  - Background, methods, results – sent to Abderrahim for review.
  - Satellite data results to go in – what would we like to show?  
Climatology and some context?
- Content for roadmap
  - How could we advance these methods in future.

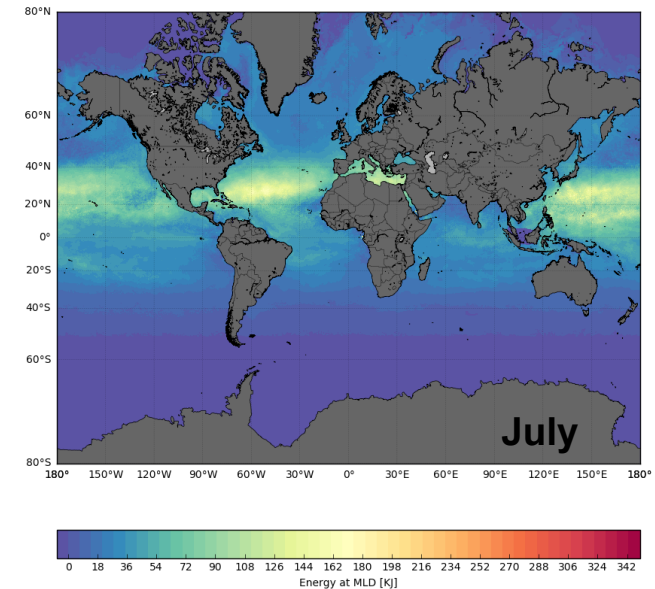
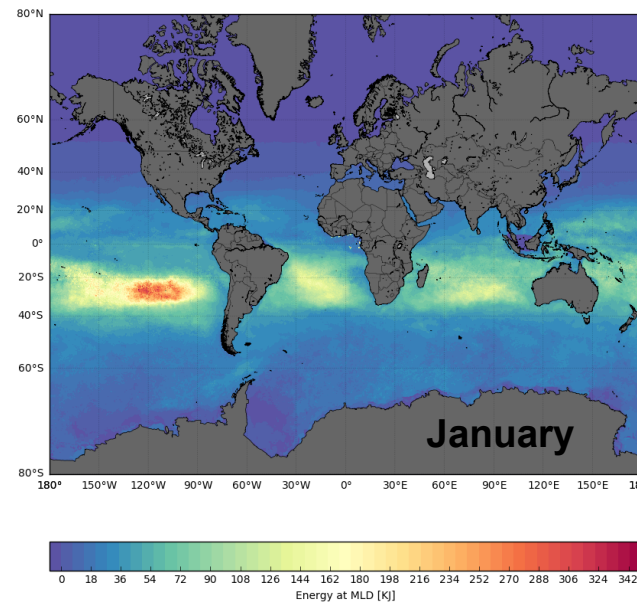
# Example results from sensitivity study

- Considered effects of variable Chl, wind and location/season.



# Outputs from satellite processing

- 9km, monthly, 1998-2005
- Corrected for clouds using PAR
- NetCDF files:
  - Latitude
  - Longitude
  - Chl
  - MLD
  - PAR
  - ISURF
  - IMLD



## Content for roadmap

- What are the implications for optical sensitivity in global ecosystem context?
  - E.g. where are biggest sensitivities and therefore impacts?
    - Blooms? Coastal Settings?
    - ENSO – recent studies on this e.g. Zhang et al., 2015.
- How can we improve modelling approaches?
  - 3D context.
  - Coupled models – e.g. recent work done by MIT Darwin model group, Curtis Mobley ROMS-Ecolight coupling.
- Albedo considerations related to optics.
  - Chl a plays part in calculation – used in VIIRS flux products.

# Thank you

