



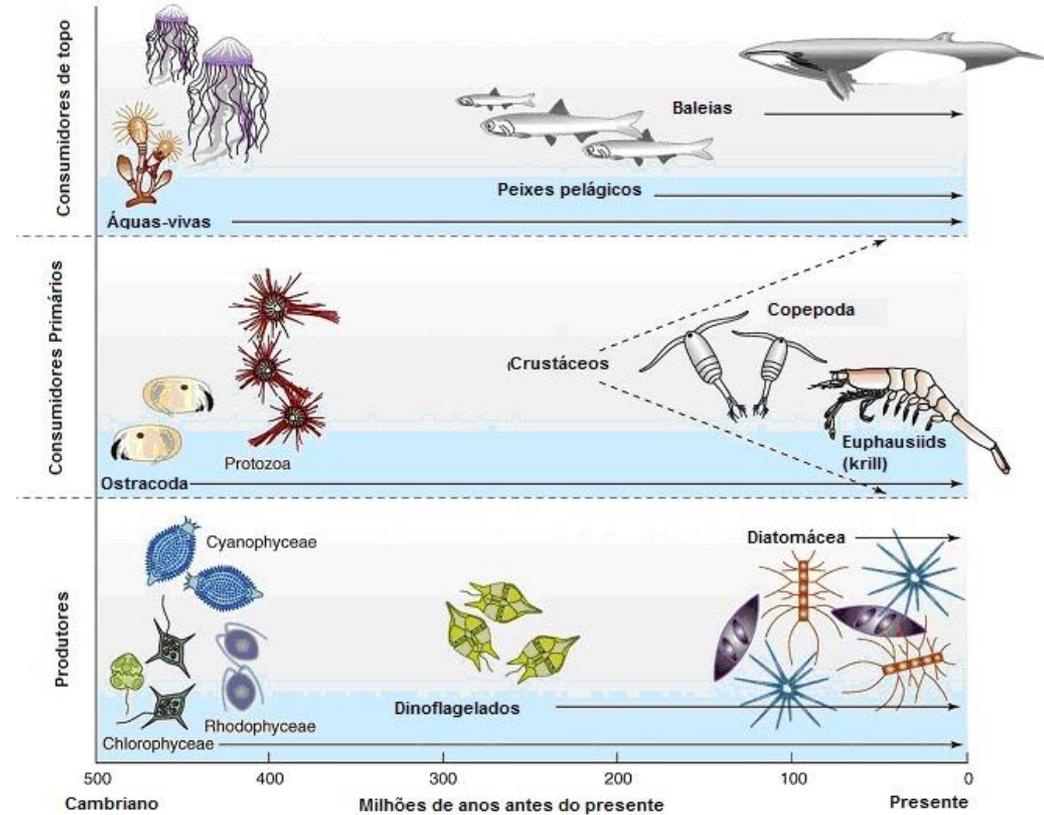
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO
INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS

A resposta da biomassa fitoplanctônica em relação à variação da zona eufótica e profundidade da camada de mistura

João Felipe Cardoso dos Santos
{joaofcs@dsr.inpe.br}

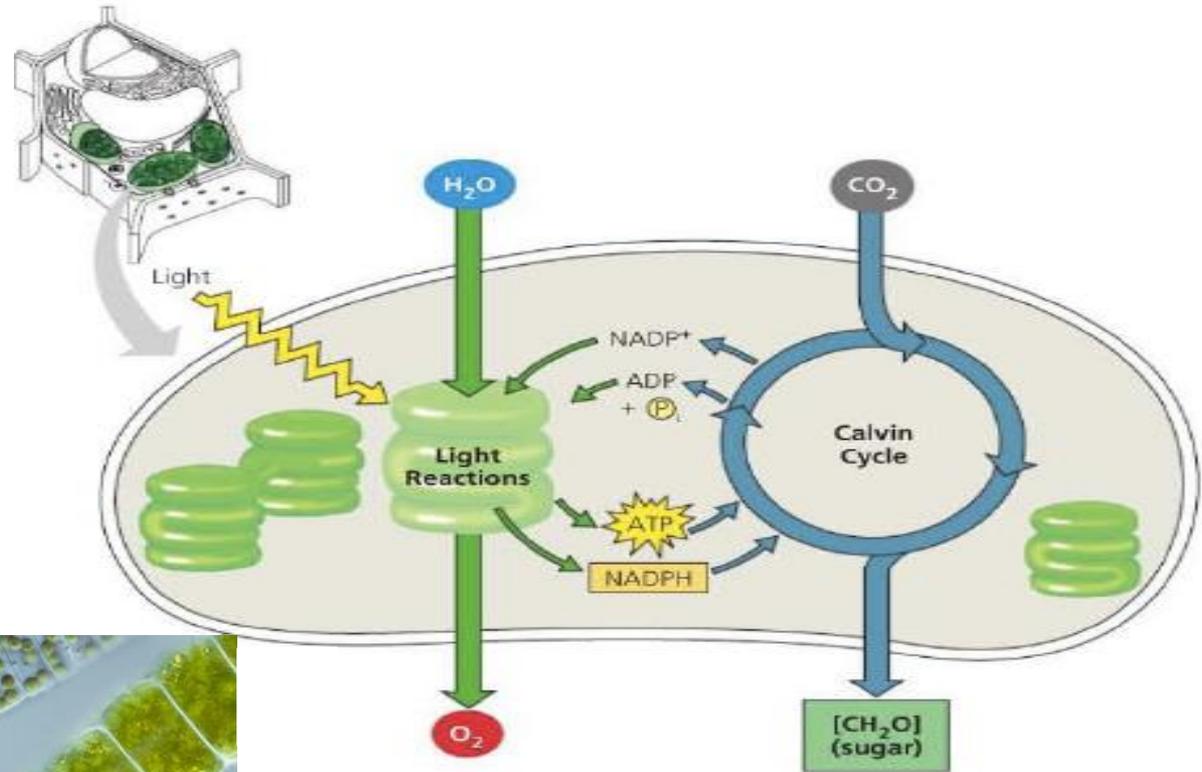
Introdução

Biomassa Fitoplanctônica



Introdução

Biomassa Fitoplanctônica

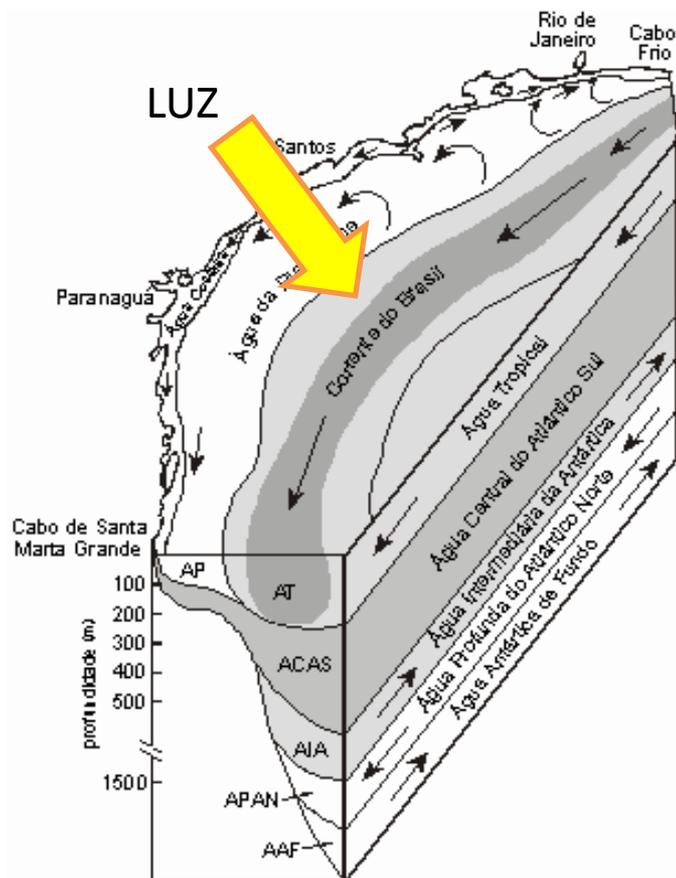
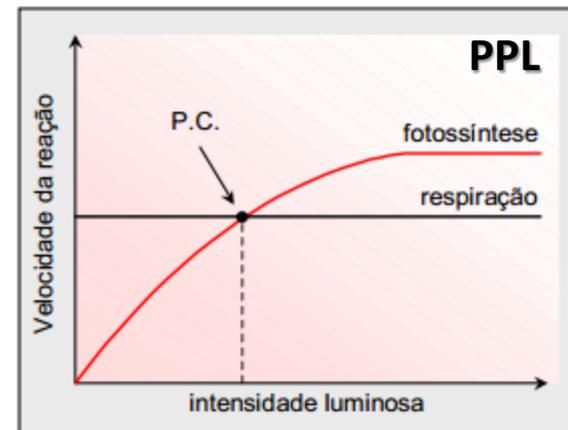


Introdução

Bloom de Primavera

ZEU

PCM



Objetivos / Motivação

Analisar o ciclo de crescimento fitoplanctônico na Baía de Santos.

Analisar a relação da biomassa fitoplanctônica com a ZEU e a PCM.

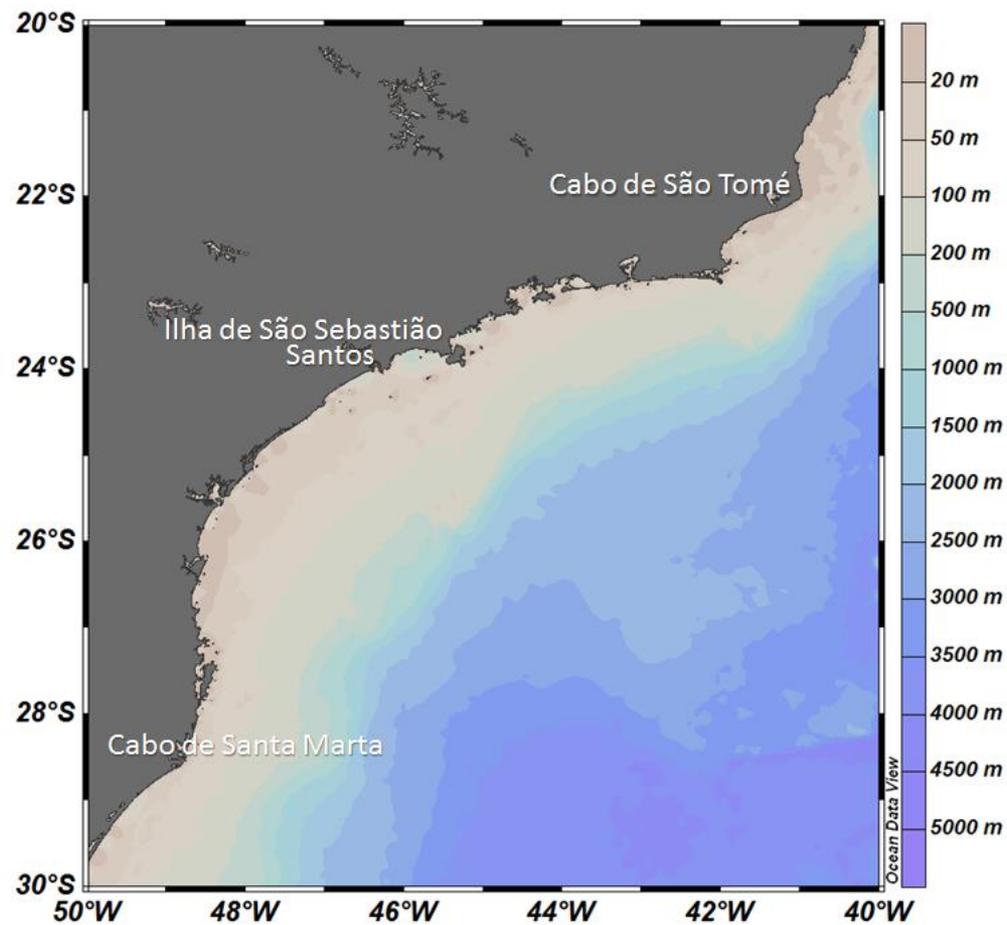
Específico: avaliar o uso de diferentes modelos de ZEU e PCM.

Auxiliar na elaboração de algoritmos locais.

As análises de PCM e Zeu são o início de uma tentativa de alcançar um desafio maior na oceanografia biológica que consiste em tentar compreender a estrutura e o funcionamento do ecossistema marinho no espaço tridimensional do meio aquático.

Metodologia

Área de Estudo



Metodologia

Dados de CSM, ZEU, PCM



**OceanColor
WEB**

[Missions](#) ▾ [Data](#) ▾ [Documents](#) ▾ [Analyses](#) ▾ [People](#) [Forum](#) ▾ [Services](#) ▾ [Links](#)

Data Access

Level 1 and 2 Browser

Visually search the ocean color data archive. Directly download or order data from a single file to an entire mission. Data from the Aquarius mission is also available.

Level 3 Browser

Browse the entire global ocean color, sea surface temperature and sea surface salinity data sets for many parameters and time periods and download PNG images or digital data in HDF format.

Ocean Color Feature

SST and Chlorophyll



Support Services

SeaDAS

A comprehensive image analysis package for the processing, display, analysis, and quality control of ocean color data.

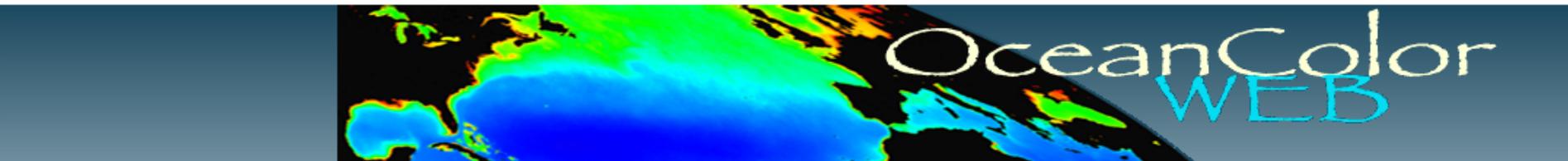
SeaBASS

An archive of *in situ* oceanographic and atmospheric data for use in algorithm development and satellite data product validation.

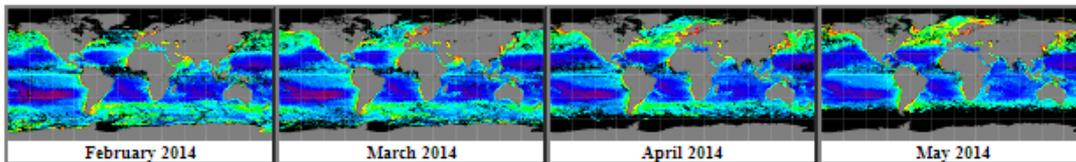
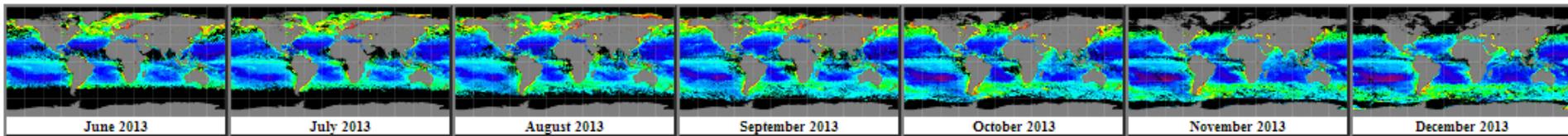
Registration for support services:

Metodologia

Dados de CSM, ZEU, PCM

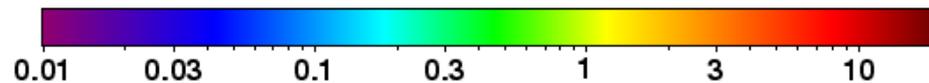


Standard Aqua MODIS Chlorophyll concentration Monthly 4 km 12 thumbnails



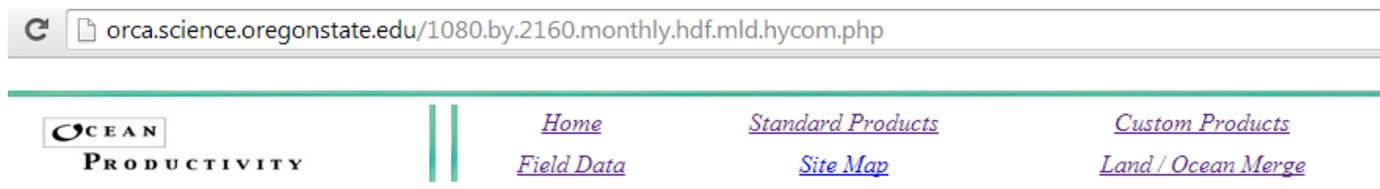
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Jul13 Aug13 Sep13 Oct13 Nov13 Dec13 Jan14 Feb14 Mar14 Apr14 May14

Chlorophyll a concentration (mg / m³)



Metodologia

Dados de CSM, ZEU, PCM



Input Data: MLD

1080 by 2160 Monthly HDF files from HYCOM Model

note: data from day 097 in 2014 based on HYCOM expt_91.1

To get these data, please click on the file name(s) that you have selected and save locally on your computer. The individual hdf files are gzipped (u contain gzipped hdf files.

[Note: a discussion of our selection of MLD data is available [here](#) for those who are interested]

- *hycom* : highest resolution, global coverage, data from day 265 (2008) to present
- *fnmoc* : good resolution, latitude limited (+/-69.49), data from day 169 (2005) to present
- *soda* : ok resolution, global coverage, data from day 249 (1997) to end of 2004
- *tops* : interpolated from 1-degree resolution, global coverage, data from day 001 (2005) to 225 (2010), isothermal layer thickness

different timestep?

- [8day files](#)

different model?

- [hycom](#)
- [fnmoc](#)

Metodologia

Dados de CSM, ZEU, PCM

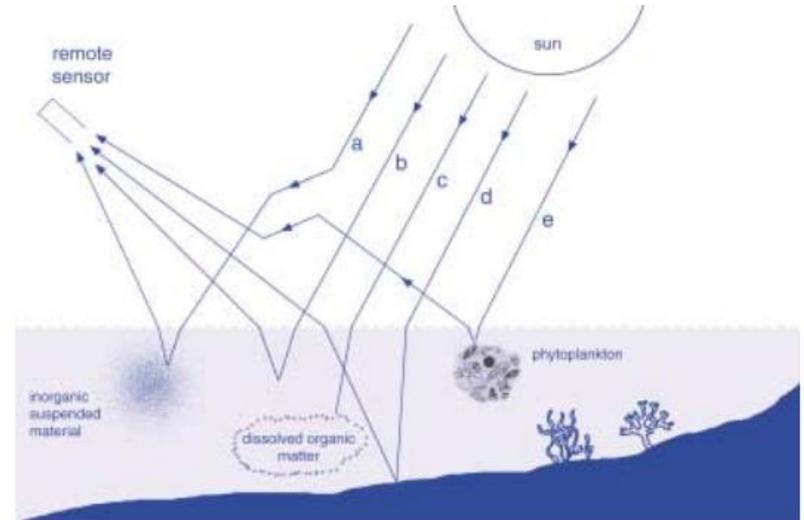


HYCOM
FNMOC

A flowchart where three vertical blue arrows descend from the text 'Dados de CSM, ZEU, PCM'. A blue arrow branches off from the right side of the second arrow and points to the text 'Lee et. al., (2007)' and 'Morel et. al., (2007)'. A third blue arrow branches off from the right side of the third arrow and points to the text 'O'Reilly et. al., (2000)'.

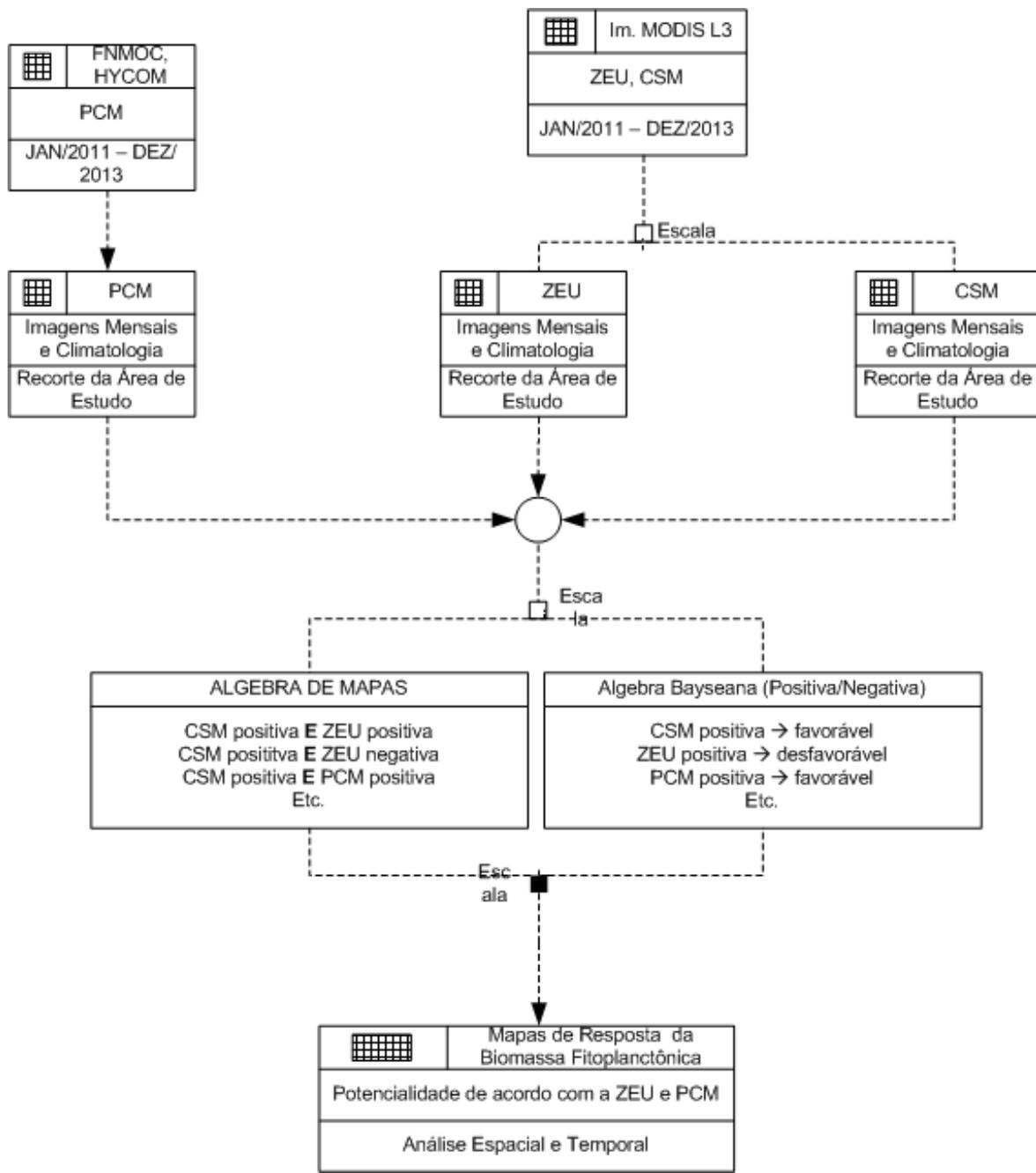
Lee et. al., (2007)
Morel et. al., (2007)

O'Reilly et. al., (2000)



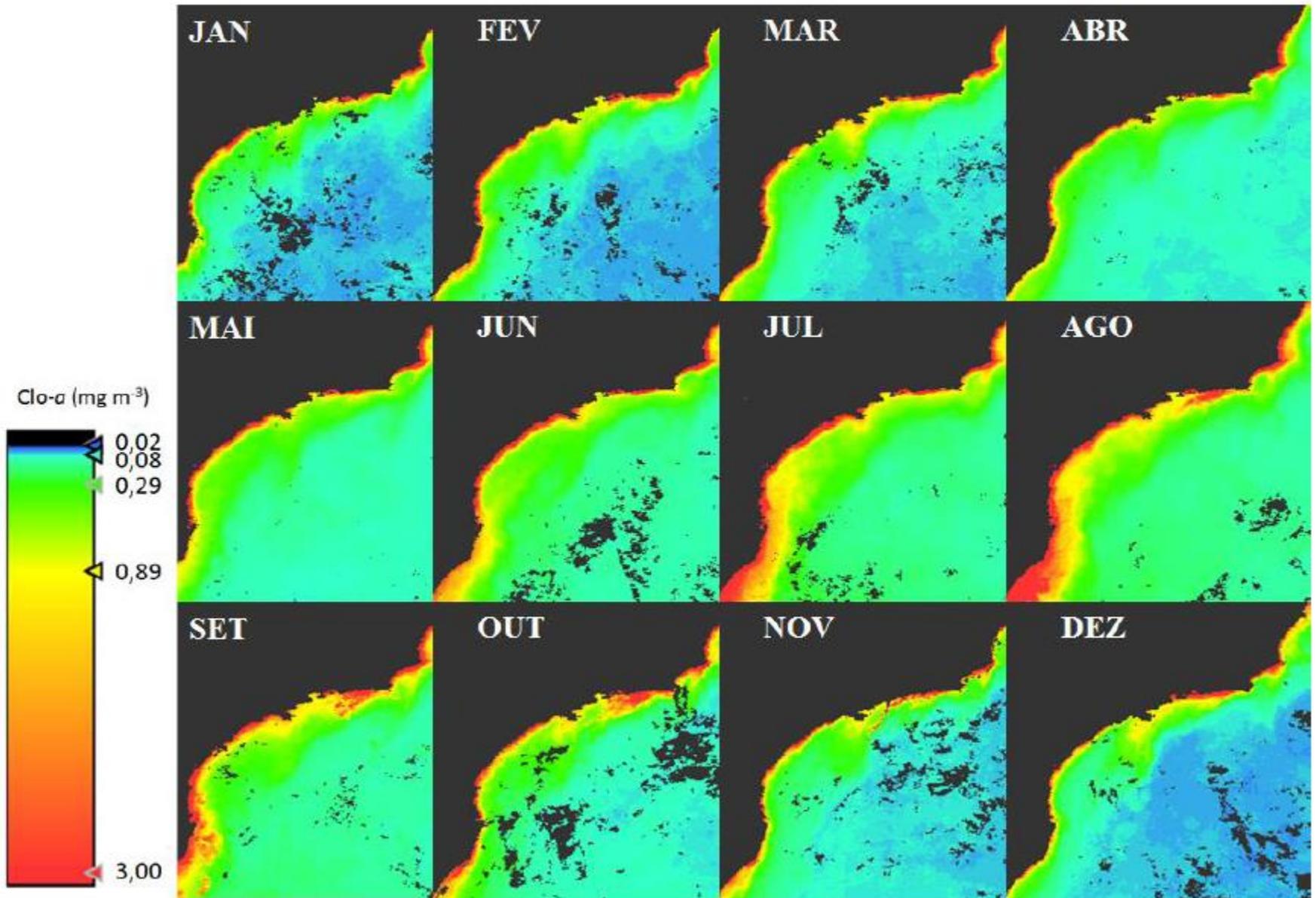
Metodologia

Série Temporal e Climatologia



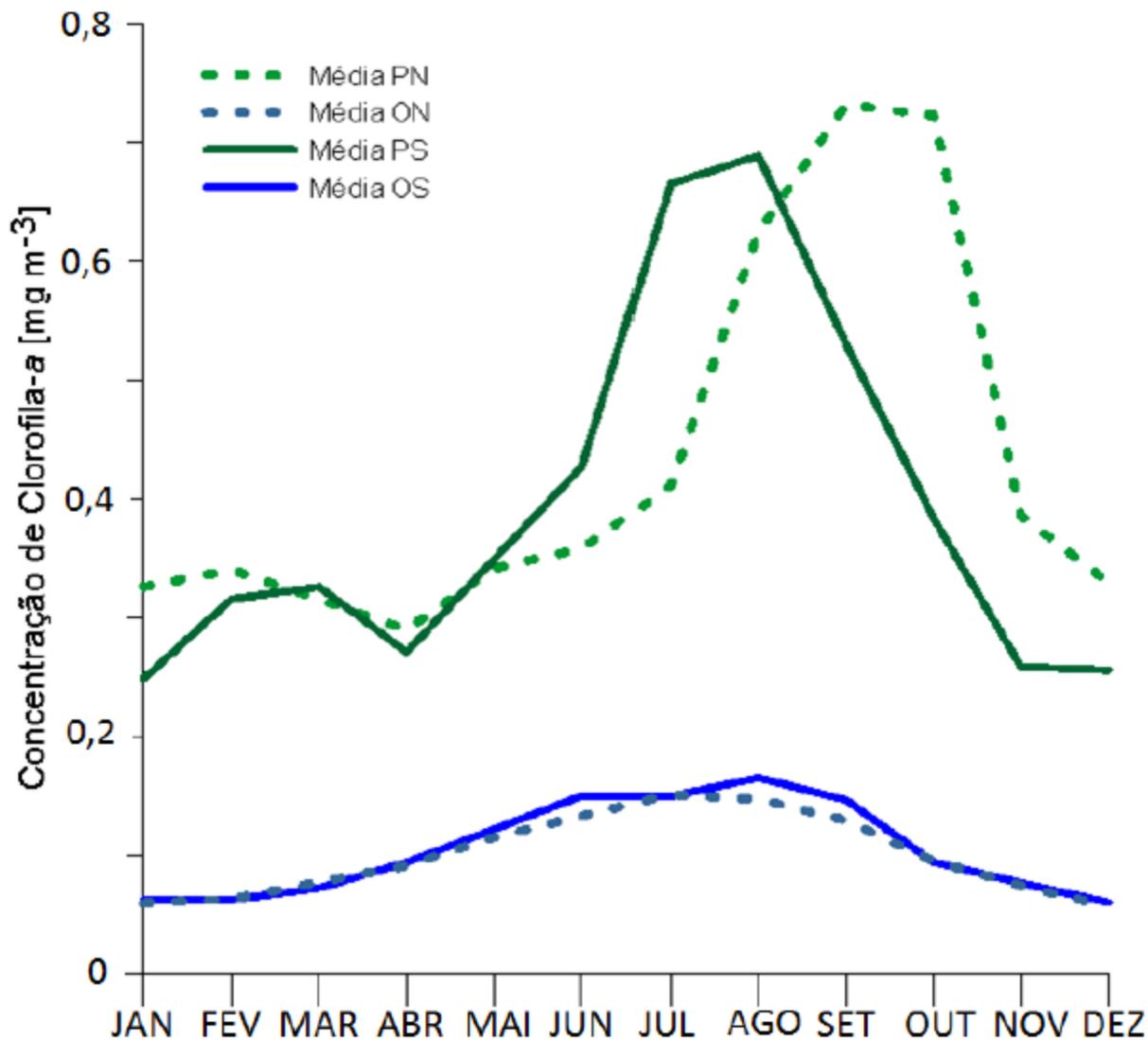
Resultado e Discussão

Clorofila na Superfície do Mar



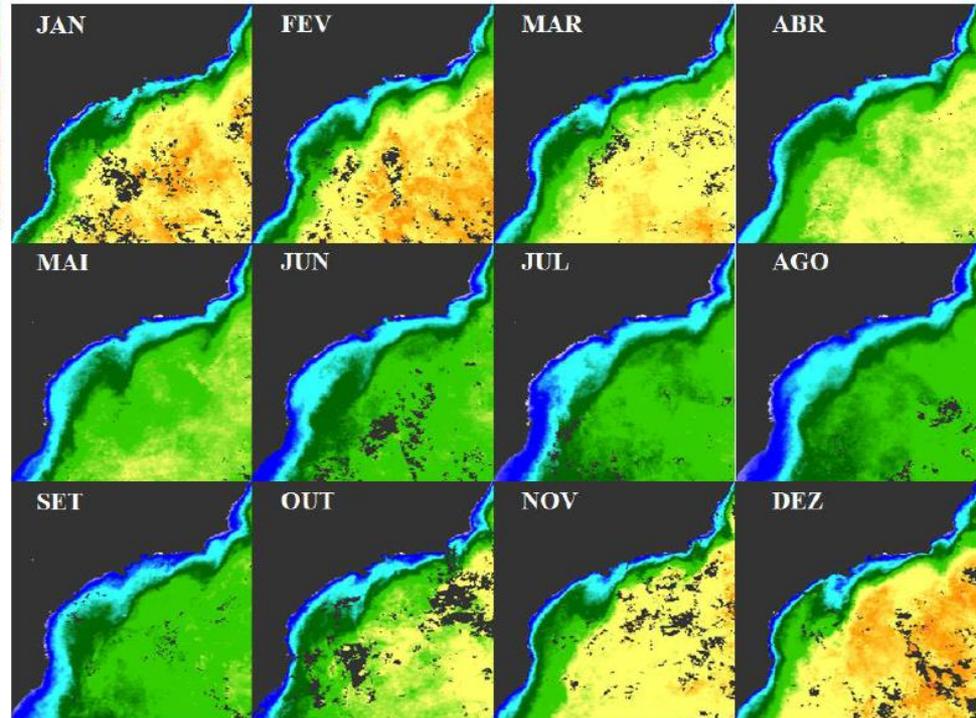
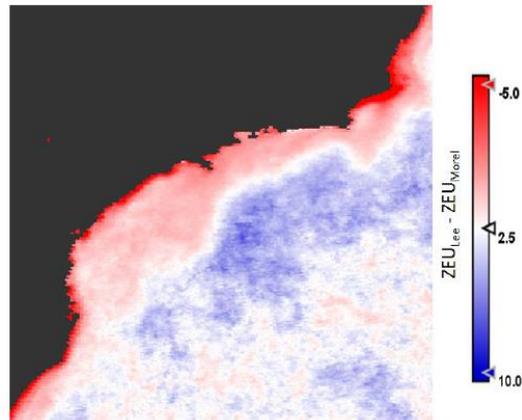
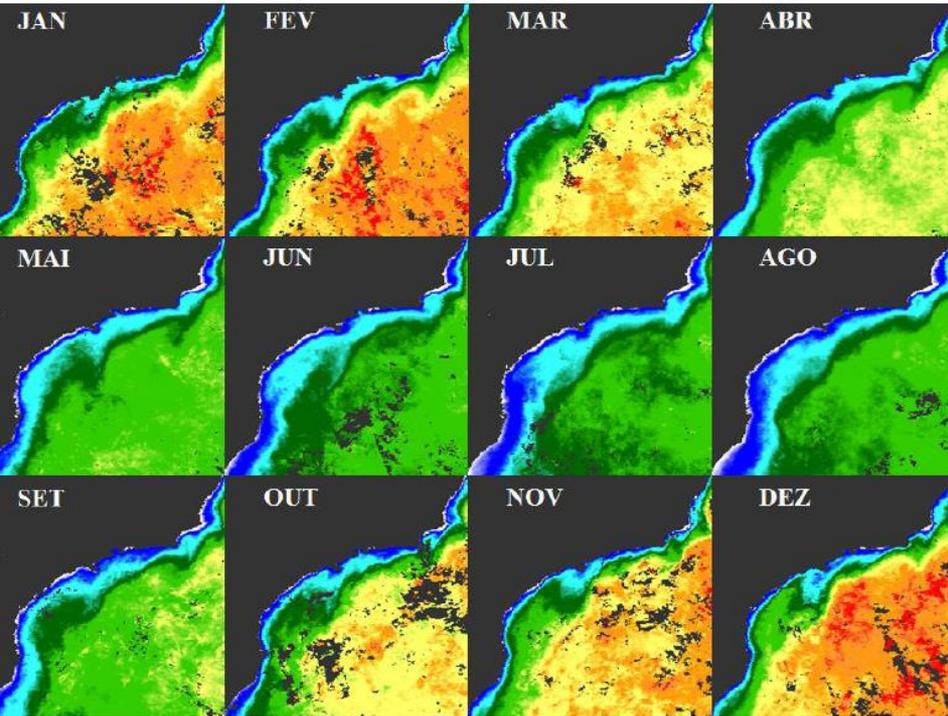
Resultado e Discussão

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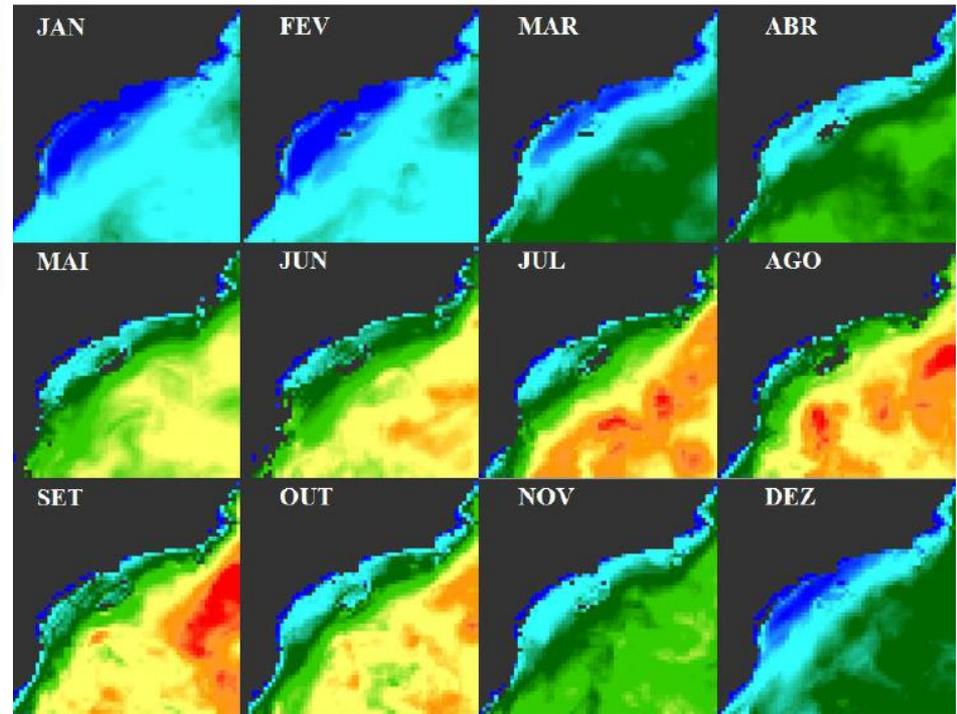
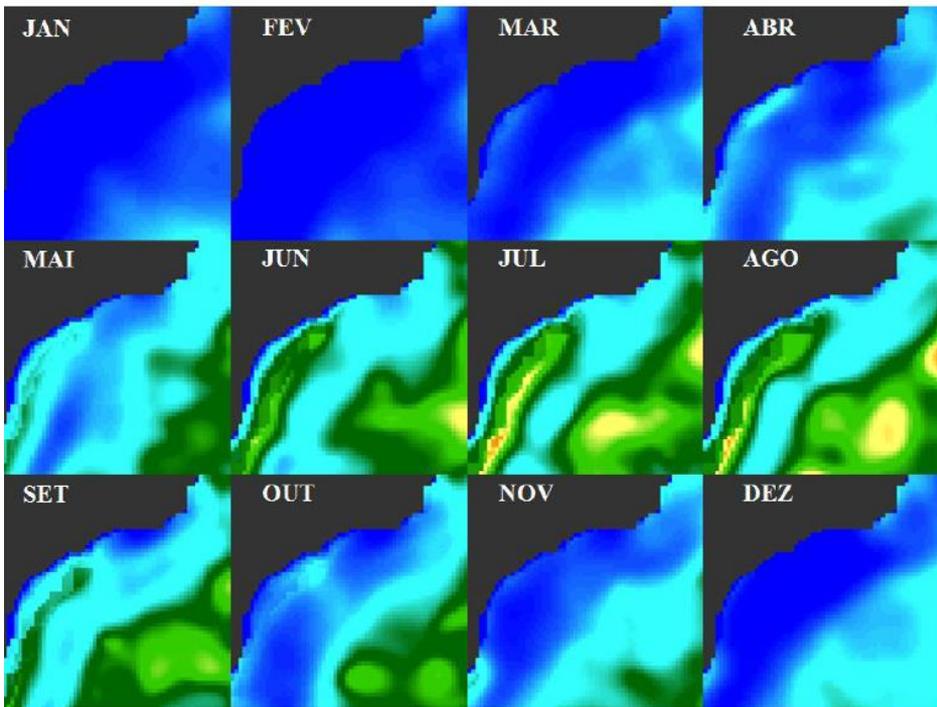
Resultado e Discussão

Zona Eufótica



Resultado e Discussão

Profundidade da Camada de Mistura



Conclusão

Maior abundância região norte da plataforma → (ACAS).

Plataforma Sul antecede o bloom. Perda de calor e mistura das águas. Pode estar relacionada a pluma do Rio da Plata.

As respectivas séries temporais variam em fase.

Não há necessidade de 4 regiões. Bastam duas.

ZEU_{Lee} para plataforma, ZEU_{Morel} para oceano aberto.

O modelo HYCOM apresentou melhor desempenho. Mas Plataforma Sul FNMOC identificou pluma.

Conclusão

Plataforma Norte → Ressurgência.

Plataforma Sul → Zona Eufótica.

Oceano aberto → PCM

Perspectivas

Avaliar juntamente com dados *in situ*.

Aumento da série de dados.

Identificar a melhor técnica de avaliação (Ponderação, Krigagem, ACP, Cluster, Análise Hierárquica).

Acrescentar novos produtos.

Obrigado!

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