Regional Assessments of Physical-Biogeochemical Models

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WHAT
16 CMIPS Biogeochemical Models

WHY
Seek best advice from biogeochemical models for present day and future...for downscaling potential, and for construction of best-guess fields for “unobserved” biogeochemical variables

HOW
Select “best” ensemble based on model “present day” (average over 1976 – 2005) fit to “present day” observations. Use this ensemble discrimination to look at present day “unknowns”, and to examine future scenario ensemble outcomes

Look at rcp4.5 and rcp8.5 ensemble predictions averaged over 2036-2055 and 2081-2100

SUMMARY
• “Best” ensemble based on Surface Chlorophyll-a discrimination encouraging
• Models seem most sensitive in Sub-Antarctic water associated with nutrient gradients across Sub-Tropical front
• Spread of future changes relative to “present day” perhaps smaller than might be anticipated from the original discrimination
• Prospects remain for biogeochemical downscaling but technically challenging

REFERENCES

AN ASSESSMENT...
Satellite/Data (circles), Model Inner (black), Model Outer (red), Ensemble Monthly Area Avg Surf Chl-a (left) and Depth of Seasonal Thermocline (right)

SOME OUTCOMES...
Satellite/Data (circles), Model Inner (black), Model Outer (red), Ensemble Monthly Area Avg IntPP (left) and dFe (right). Blue dots are VGPM estimated for IntPP