

What are the goals of PACE?

What science questions address PACE goals?

How would PACE address the science questions?
Instrument requirements
Mission requirements

Strawman instrument
Strawman mission

Estimated cost

Reports and
white papers:
ACE
IOCCG
NRC
NASA/
TM2011-2158
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What are the Ocean Goals of PACE?

1-Extend specific heritage Earth system data records of ocean color radiometry (Rrs, Chl) over multiple decadal scales.

2 – Observe new and refine existing global ocean products of ocean ecology, biology, and chemistry required to quantify carbon cycles and ecosystem structure, composition and function and their changes over time.

3 – Improve our understanding of the interactions within ocean ecosystems and between the oceans, land and atmosphere.

Atmosphere Corrections for PACE

Present OC atm corrections for MODIS/WiFS/etc

Applies to bands 412 to 670 – Goal: LwN to 5%

Use NIR bands (assume black pixels) to estimate aerosol model and AOD

Subtract aerosol radiance from TOA -> LwN

Other corrections: Rayleigh, surface roughness, non-black NIR (SWIR), vicarious calibration

Outstanding issues with existing OC atm corrections

absorbing aerosols (SSA & vert. profile), poor validation of short wave LwN, requirements on input parameters (O₃, H₂O, atm press, etc.), accurate source data (MOBY-like), adjacency effects (MTF of the atm),bb

Atmosphere Corrections for PACE

What are quantitative requirements for aerosol corrections?

UV Atm Corr

UV radiance – use 350 as an “anchor”

Aerosol type to characterize the “buoyancy” of the “anchor”

Extend atm corr into the UV

Can we see LwN 360 380 through Rayleigh atm?

Modeling study – requirements for ancillary data

Aerosol source region and type

Future

Simultaneous atm/oce retrievals

Land atm corr?

What are the science questions?

How would PACE address the science questions?

What are the instrument requirements?

What are the mission requirements?