A DYNAMICALLY DOWNSCALED ENSEMBLE OF FUTURE PROJECTIONS FOR THE CALIFORNIA CURRENT SYSTEM

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Pozo Buil et al., in review (Frontiers Marine Sciences)
3 Downscaling Experiments:

- ROMS
- GFDL
- IPSL
- HAD

Time-Varying Delta Downscaling method

HADGEM2-ES
GFDEL-ESM2M
IPSL-CM5A-MR

CMIP5, RCP 8.5

Pozo Buil et al., in review
Future Changes: SST\textsubscript{Future} - SST\textsubscript{Historical}

Future 2070-2100
Historical 1980-2010

\[ \Delta \text{SST (°C)} \]

Pozo Buil et al., in review
Future Changes: CHL\textsubscript{Future} - CHL\textsubscript{Historical}

Future 2070-2100
Historical 1980-2010

\[ \Delta 0-50m \text{ Chl (mg m}^{-2}\text{)} \]

Pozo Buil et al., in review
Temporal variability

Pozo Buil et al., in review
Impact of Regional Downscaling

SST change (°C)

0-50m Chl anomalies (mg m⁻²)

Pozo Buil et al., in review
SUMMARY

• Better resolution of upwelling dynamics leads to **regional differences** in the future changes
• All models agree in the direction of the future change in offshore waters
• Large **inter-model differences** arise in the coastal region, specially for biogeochemical variables
• While trends in the downscaled models reflect those in the GCMs that force them, the GCM and downscaled solutions differ more for biogeochemical than for physical variables