

Updates on CBP Phase 6 Watershed Model and DLEM Comparisons

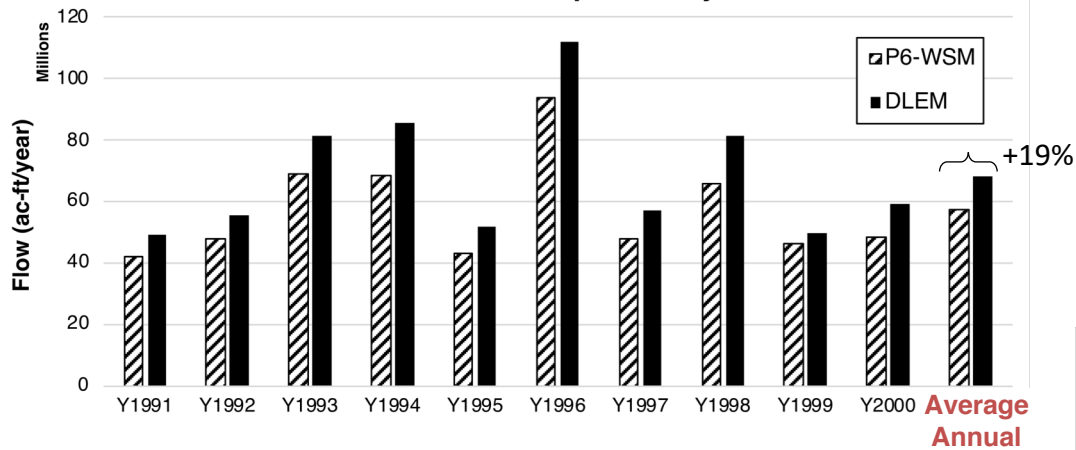
CHAMP Meeting – March 2019

Presentation Outline

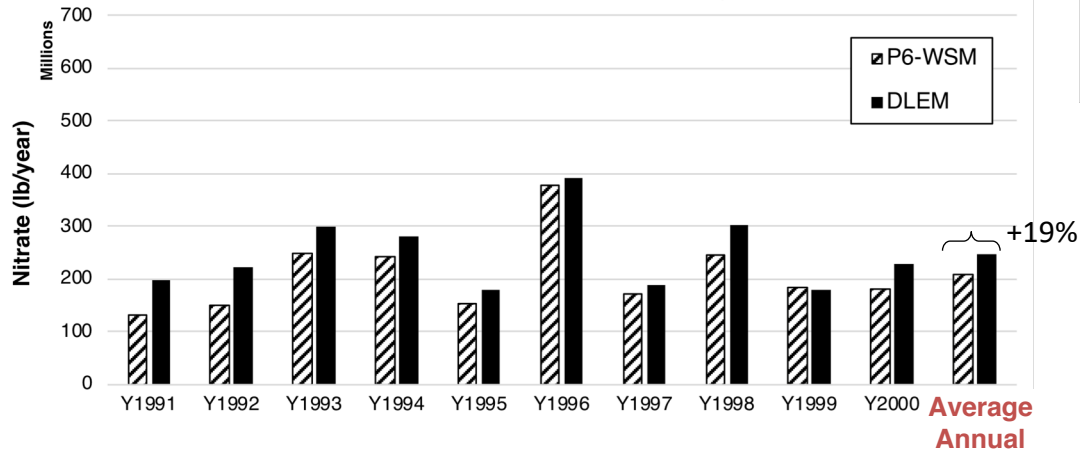
1. Comparison of Chesapeake Bay Watershed (a) Flow, (b) Nitrate, and (c) Total Nitrogen loads for the baseline/calibration scenarios of Phase 6 Watershed Model (P6WSM) and Dynamic Land Ecosystem Model (DLEM)
2. Comparison of simulated percent changes in Flow, Nitrate, and Total Nitrogen loads between 2025 and 1995 (1991-2000) for two MACA RCP 8.5 GCMs (a) IPSL-CM5A-MR, and (b) MIROC5

DLEM results provided by Yuanzhi Yao et al. (v20190314)

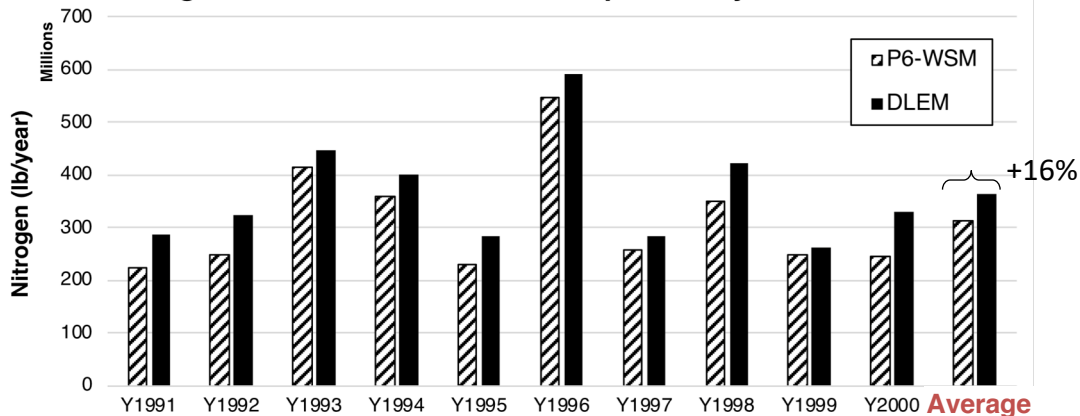
Flow Baseline Scenario - Chesapeake Bay Watershed



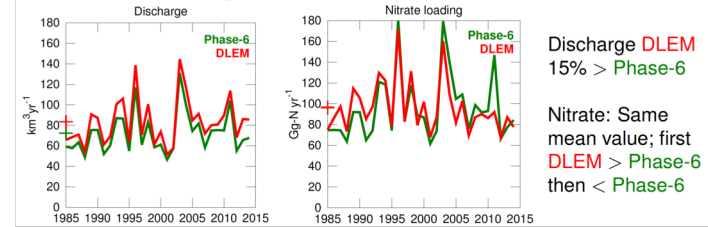
Nitrate Baseline Scenario - Chesapeake Bay Watershed



Nitrogen Baseline Scenario - Chesapeake Bay Watershed



Riverine forcing: Phase-6 vs. DLEM



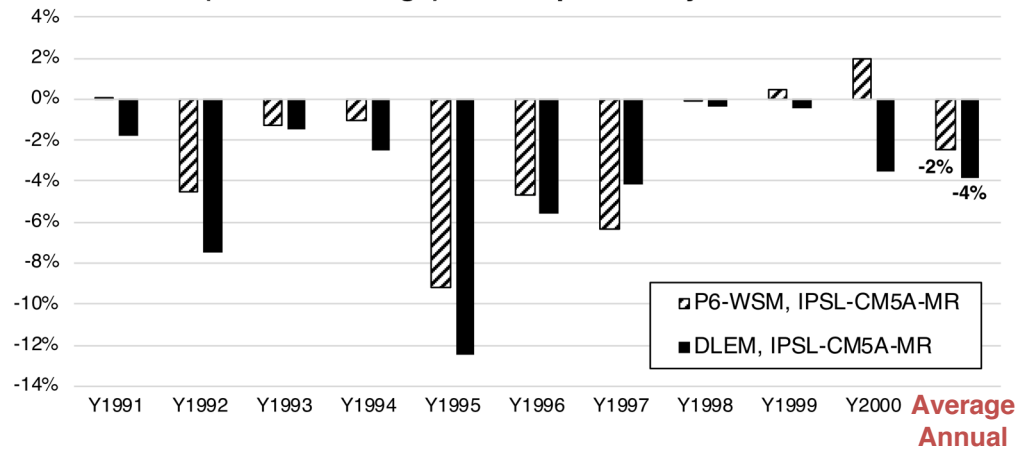
Pierre Saint Laurent, CHAMP Nov 2018

IPSL-CM5A-MR (2025 vs. 1995):

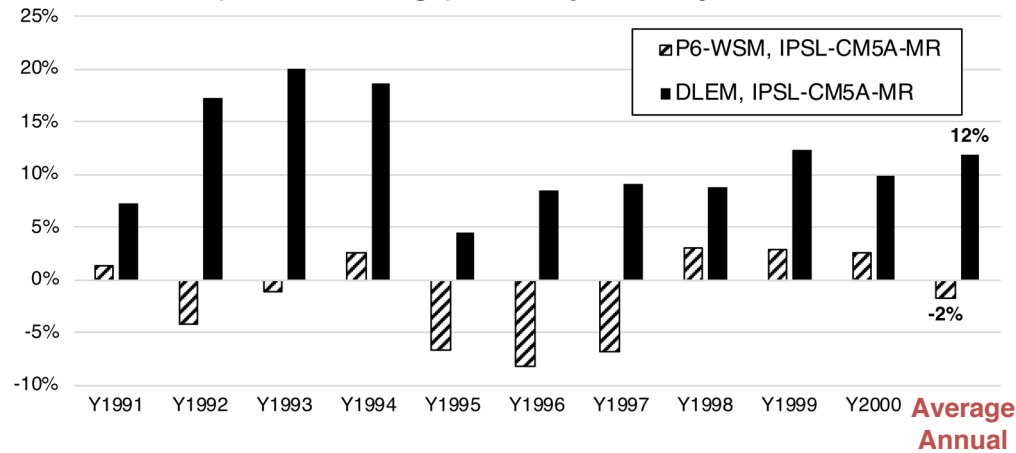
0.44% increase in rainfall

1.07°C increase in temperature

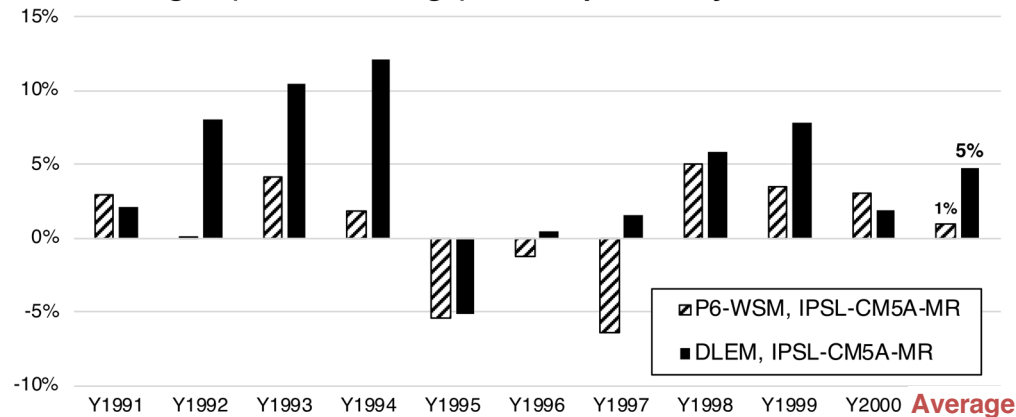
Flow (Percent Change) - Chesapeake Bay Watershed



Nitrate (Percent Change) - Chesapeake Bay Watershed



Nitrogen (Percent Change) - Chesapeake Bay Watershed

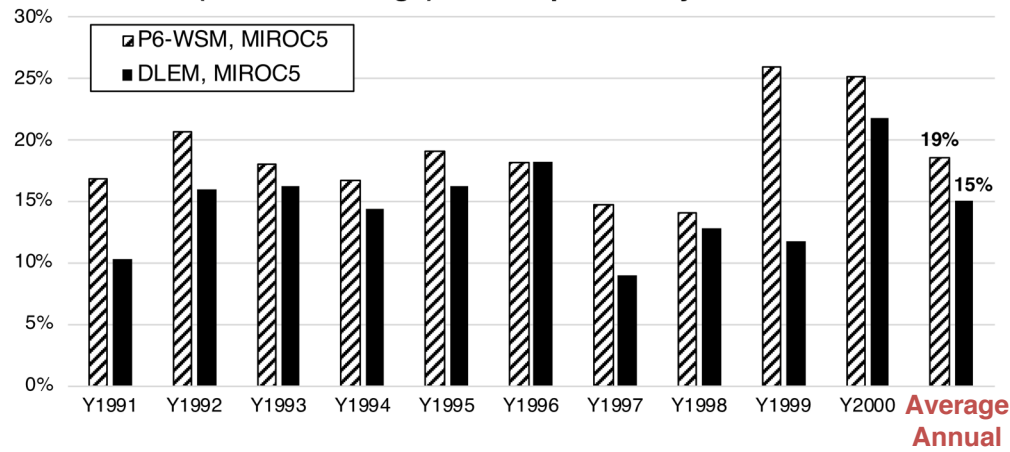


MIROC5 (2025 vs. 1995):

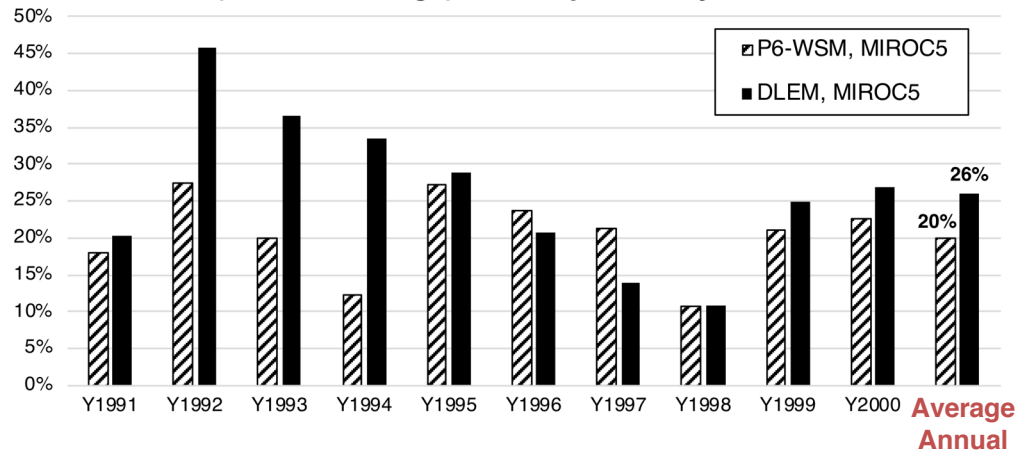
10.77% increase in rainfall

1.26°C increase in temperature

Flow (Percent Change) - Chesapeake Bay Watershed



Nitrate (Percent Change) - Chesapeake Bay Watershed



Nitrogen (Percent Change) - Chesapeake Bay Watershed

