currents over hundreds of years based on the radiometrically measured regional sedi-mentation rate. The 3D morphological analysis by the GPR excursion confirms iden-
titity with the fossil Paleodictyon nodorum. Biological studies of cores from different locations in the Chewaucan River show that the GPR data are under test alternative hypothesis for the origin of the Paleodictyon pattern. In the paleontolog-
ical view, the pattern is a tunnel system constructed as part of the feeding strategy (bacterial farming) by an unknown hitherto invertebrate. Another hypothesis claims that we deal with the tubular body of an infa-
nial member of the Xenophyophorea, a poorly known group of foraminifera, like protozoans.

OS32B-MCC: Level 1-Wednesday 1330h
General Ocean Sciences: Estuaries
Presiding: M Tzortziou1, University of Maryland, College Park; H A Zahakos, Columbus University

OS32B-024 1330h POSTER
Measurements of Remote Sensing Reflectance in Chesapeake Bay Using In-situ and Satellite (MODIS) Observations
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Determining water column structure in a partially-mixed estuary, such as Narragansett Bay, is important for understanding the impact stratification has on phytoplankton productivity and dissolved oxygen concentrations. In particular, nutrient models need to account for the stratification and its influence on the vertical flux of ecologically important variables such as phytoplankton, heat, oxygen, and nutrients. We utilize a combination of buoy data and numerical modeling to better understand processes surrounding the evolution and breakdown in stratification in Narragansett Bay for a range of environmental conditions. Autonomous sensors have been deployed in Narragansett Bay to collect continuous high temporal resolution chemical and hydrographic data. Data were collected every fifteen minutes 0.5 m below the surface and 1 m from the bottom from July 2001 to December 2001 and from July 2002 to December 2002 at seven locations in Narragansett Bay and the Providence River, RI. The suite of water column variables measured were surface and bottom temperature, salinity, dissolved oxygen and pH, and surface chlorophyll. Results show that stratification events occur intermittently in Narragansett Bay and that increased phytoplankton productivity and hypoxia are associated with summertime stratification events. The Regional Ocean Modeling System (ROMS) model, a two-dimensional, free-surface model developed by Rutgers University, New Jersey, has been applied Narragansett Bay to determine how the basic layered flow can be perturbed by runoff events and variable winds. For instance, in the basic stratified flow pattern formed in Narragansett Bay there is an outward flow of water from the surface and an inward flow of dense water from deeper waters. Strong south winds shutdown the deep return flow. Time series observations combined with ROMS model experiments have been able to enhance the understanding of the development and breakdown of stratification and the impact stratification has on phytoplankton productivity and dissolved oxygen conditions in Narragansett Bay.

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Modeling wetting and drying process in San Francisco Bay using the Princeton Ocean Model

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Wetting and drying of grid cells is developed to incorporate into the Princeton Ocean Model (POM, Blumberg and Mellor, 1987), which is based upon a sigma-coordinate system, to be able to characterize the bed topography or the roughness height. We also set a threshold horizontal mixing between shallower and deeper residual current velocities show that there exists in-time dried-up grid cells varies with time, reaching up to 271 cells. The depth-integrated and 3D surface concentration of particulate matter in bay water. Conductivity in San Diego Bay should have caused high shipping traffic, tidal resuspension, as well as high production rates of Pb-210 in north San Diego Bay (ranging 1-3.7). Enrichment factors of up to 3.5 have been reported in other coastal oceanic environments, and the unusually high inventory of Pb-210 in north San Diego Bay suggested impacts on the coastal sediment column of a tidal embayment.

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