Bloomin' Algae! How paleogeography and algal blooms may have significantly impacted deposition and preservation of the Marcellus Shale

Gregory R. Wrightstone
Texas Keystone, Inc., Pittsburgh, PA 15237 gwrightstone@texaskeystone.com

The Marcellus Shale of the Appalachian Basin has been characterized as having geologically favorable rock properties, including high total organic carbon, high porosity and high permeability. These properties are linked directly with the large natural gas reserve projections for individual wells and for the Marcellus play as a whole. The superior rock properties may be explained by the depositional framework of the Marcellus and the significant role that algal blooms may have played in the development of this resource. The Marcellus depositional system was previously described by Wrightstone (2010) as having occurred in a "Perfect Storm" for organic mud creation, preservation and lack of dilution into a nearly enclosed depositional basin. Algal blooms are suggested to have greatly increased the production of organics and also enhanced preservation by creation of possible basin-wide anoxia. This important role of algal blooms is likely to be applicable to many of the other Shale plays around the world.