Understanding pressure baseline through measurements from an Isoprime 5kV mass spectrometer

Ryan A Venturelli, Brad E Rosenheim
University of South Florida, College of Marine Science, St. Petersburg, FL
Email: raventurelli@mail.usf.edu

Reliable measurements of clumped isotopes using a prototype Isoprime dual inlet mass spectrometer system have been demonstrated by Rosenheim (et al., 2013), and used for measurements of both siderite (Fernandez et al., 2013) and calcite (Tang et al., 2014). However, the relationship between Δ_{47} and δ^{47} is steeper than most other platforms indicating poor approximation of measurement background in the Isoprime. Here we will present the status of this system after the installation of a new head amplifier; which has allowed us to observe Δ_{47} signals with lower beam intensities and ultimately smaller sample sizes. The ability to make meaningful measurements at smaller beam intensities ultimately allows us to better constrain the differing, and sometimes perplexing, effects of pressure baseline correction at different beam intensities.

