Kerri Pratt, University of Michigan

Research Group Foci:

• Arctic trace gases, aerosol, and snow chemical composition

• **Individual particle analysis for size, chemical composition, and source identification**
  - *Off-line*: Computer-controlled scanning electron microscopy with energy dispersive X-ray spectroscopy (CCSEM-EDX) at EMSL and Univ. of Michigan
  - *On-line*: Single-particle mass spectrometry

• **Previous aerosol field campaigns** (bold = ARM field campaigns):
  - **Chukchi & Bering Seas**: Aug. 2016, Aug. 2017
  - **High Arctic**: Jul.-Sep. 2018

• **DOE Early Career Grant & ARM Field Campaigns:**
    • Single-particle mass spectrometry + aerosol collection for CCSEM-EDX
  - **Sep. 2019 – Oct. 2020**: MOSAiC!
    • Particle collection for CCSEM-EDX

• **Let’s collaborate! We can analyze specific individual particle samples, or deploy impactors.**
MOSAiC Deployment of Aerosol Impactor (ARM guest instrument)

- Autonomous rotating 3-stage (size-resolved) DRUM impactor with daily sampling time resolution
- Offline CCSEM-EDX for individual particle morphology and elemental composition
- Collaboration with Jessie Creamean, Colorado State Univ., who will also be deploying a DRUM impactor for offline INP analysis
- Previously deployed at Oliktok Point, AK for Mar. – May 2017 ARM field campaign

**Why do we care about individual particle analysis?**

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**Population 1**
- 5 Cloud Active
- All 5 Particles
- 50% (NH₄)₂SO₄
- 50% Hydrophobic Organic Carbon

**Population 2**
- 2 Cloud Active
- 2 Pure (NH₄)₂SO₄
- 2 Pure Hydrophobic Organic Carbon
- 1 (NH₄)₂SO₄ Core with Organic Shell

Gunsch et al. 2017, ACP