

Surface-based aerosol observations during ISDAC

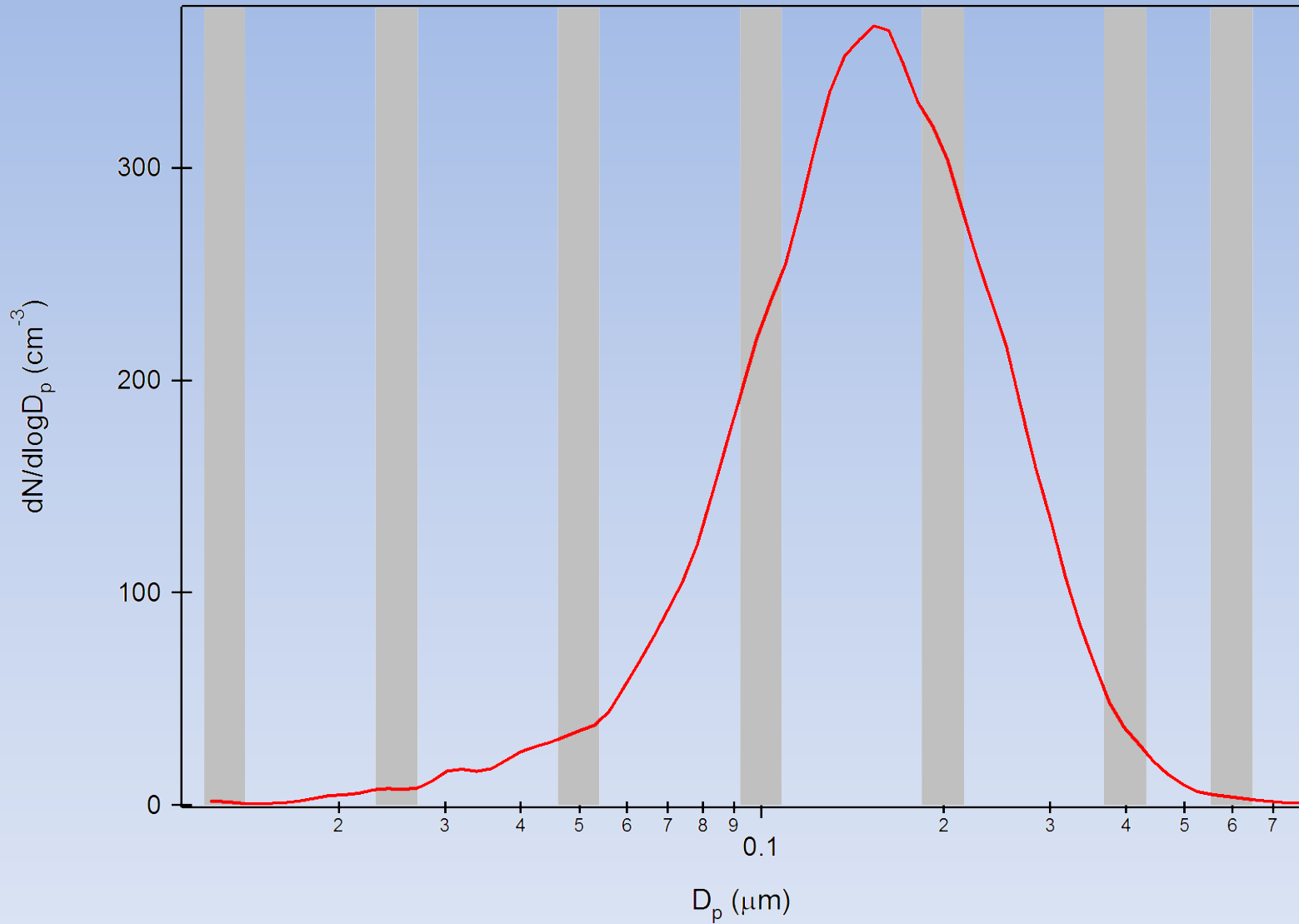


Don Collins – Texas A&M University

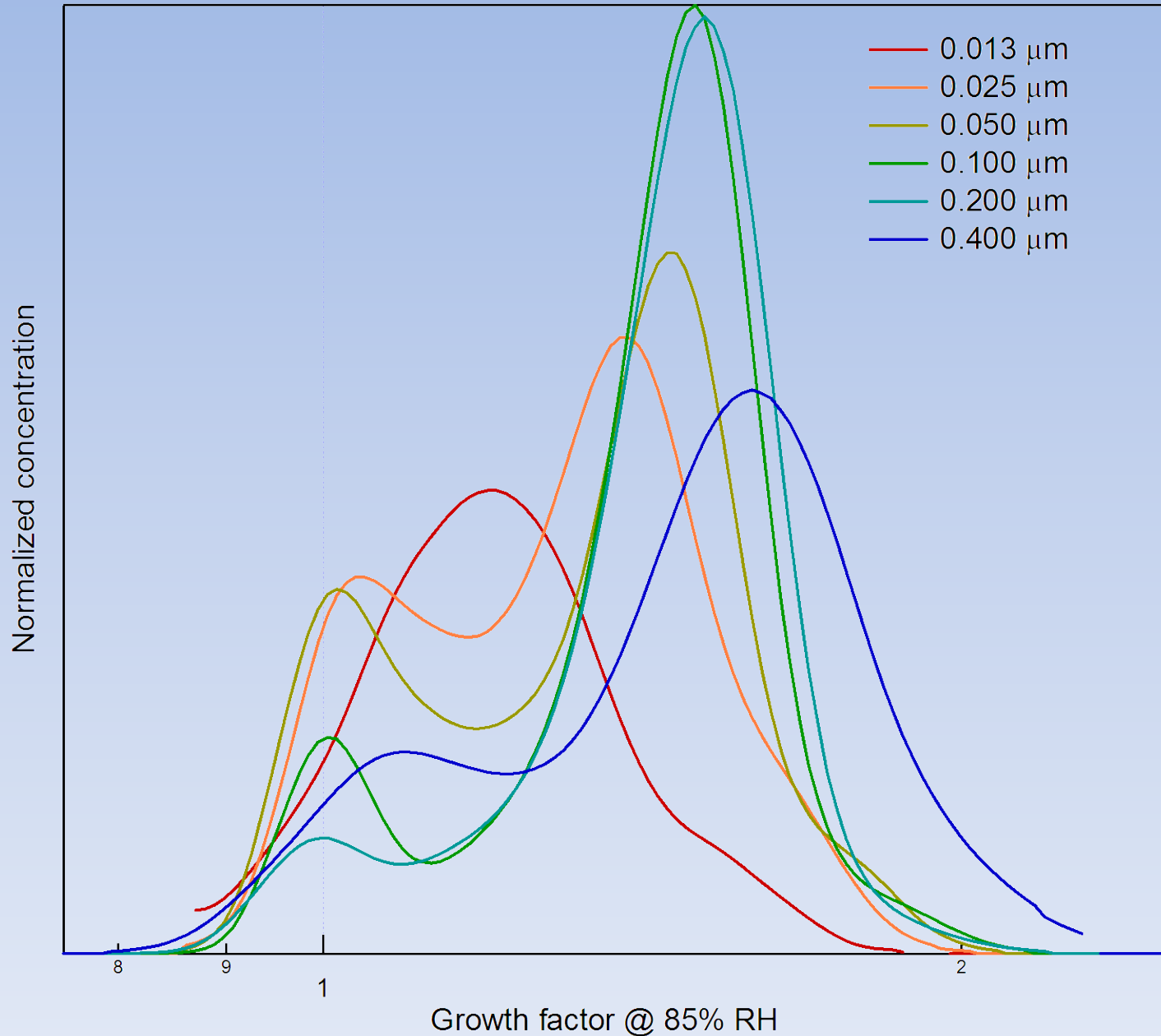
Instrumentation

| Instrument | Measurement |
|---|---|
| Differential mobility analyzer (DMA) ↓ Cloud condensation nuclei counter (CCNc) | Size-resolved activation efficiency at multiple S |
| Tandem differential mobility analyzer (TDMA) | Size-resolved hygroscopicity distributions |

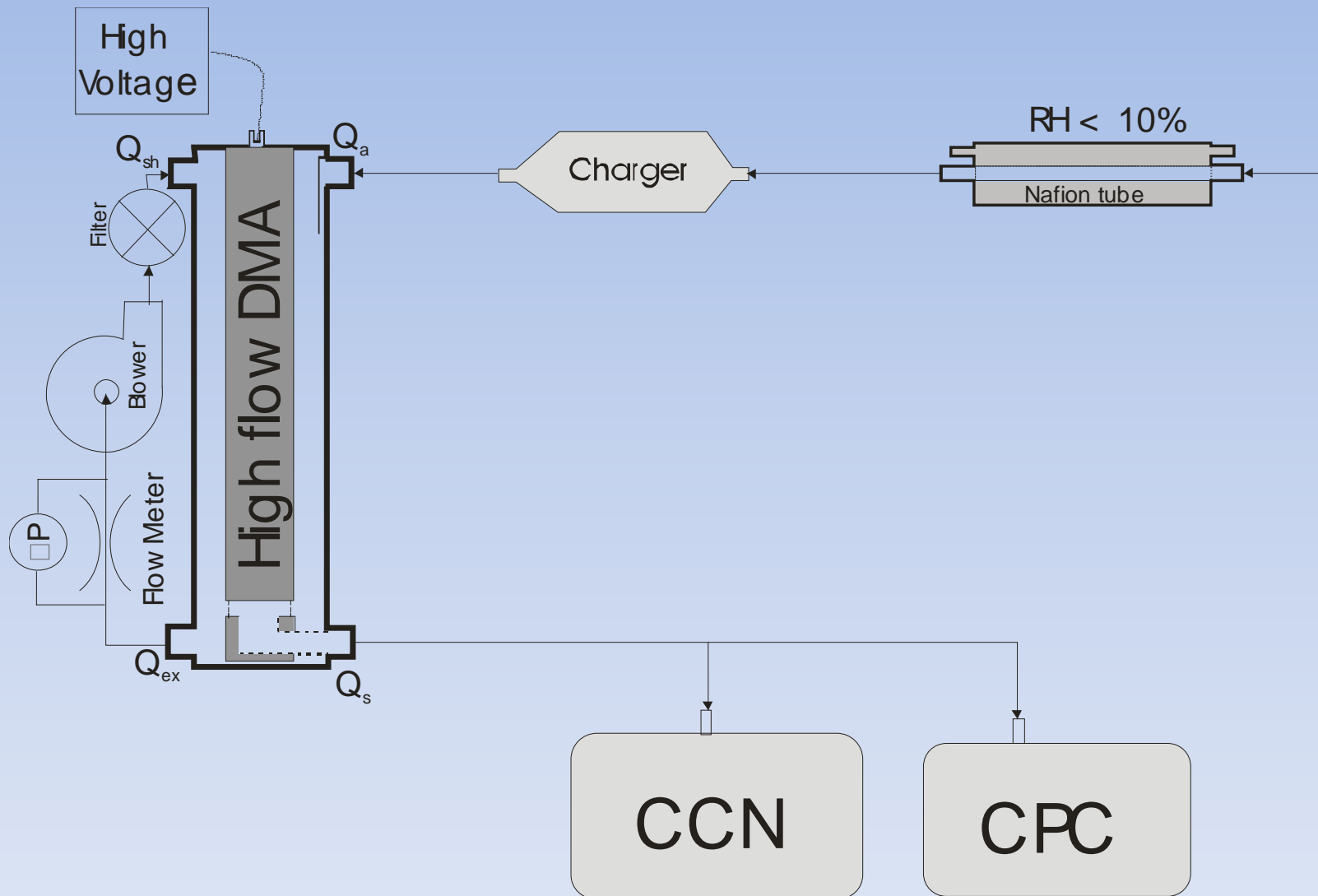
Hygroscopic growth measurements



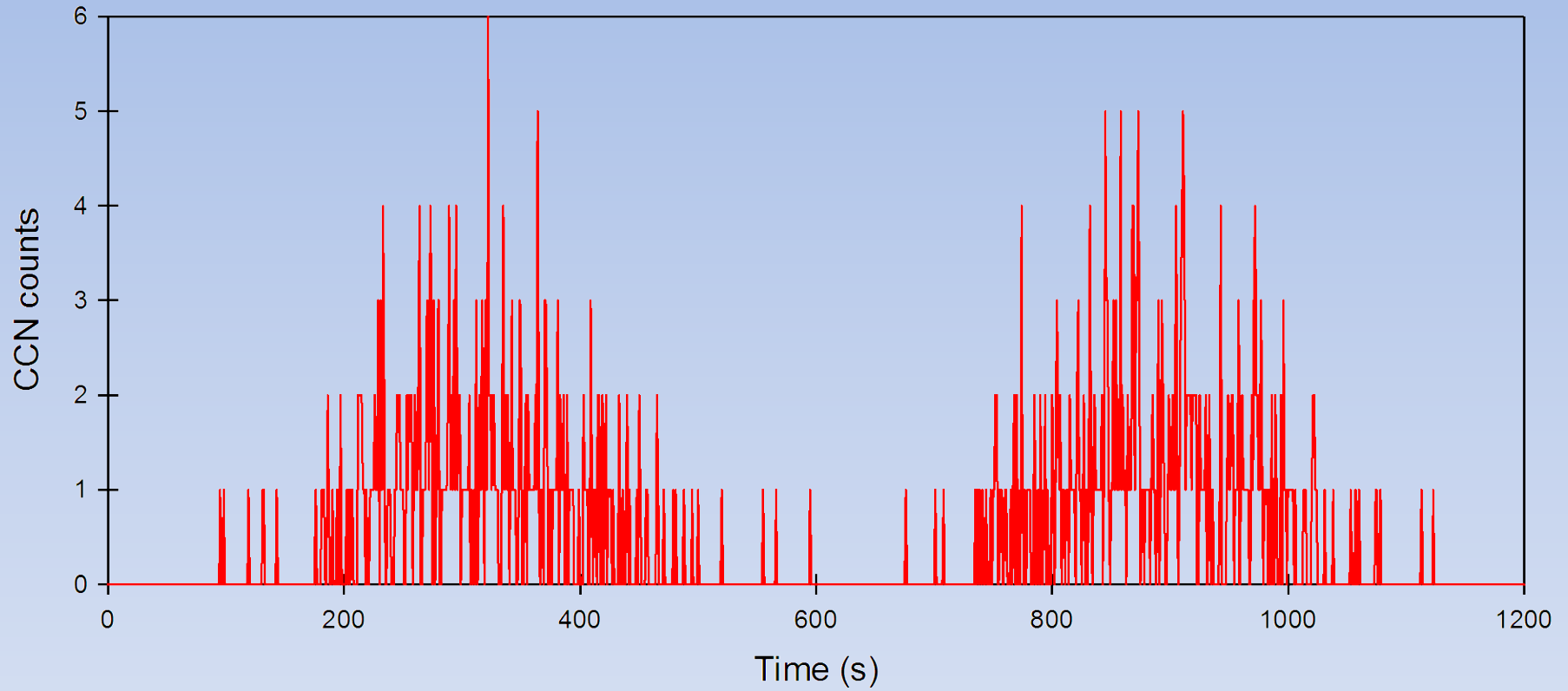
April-average hygroscopicity distributions



DMA → CCNc schematic

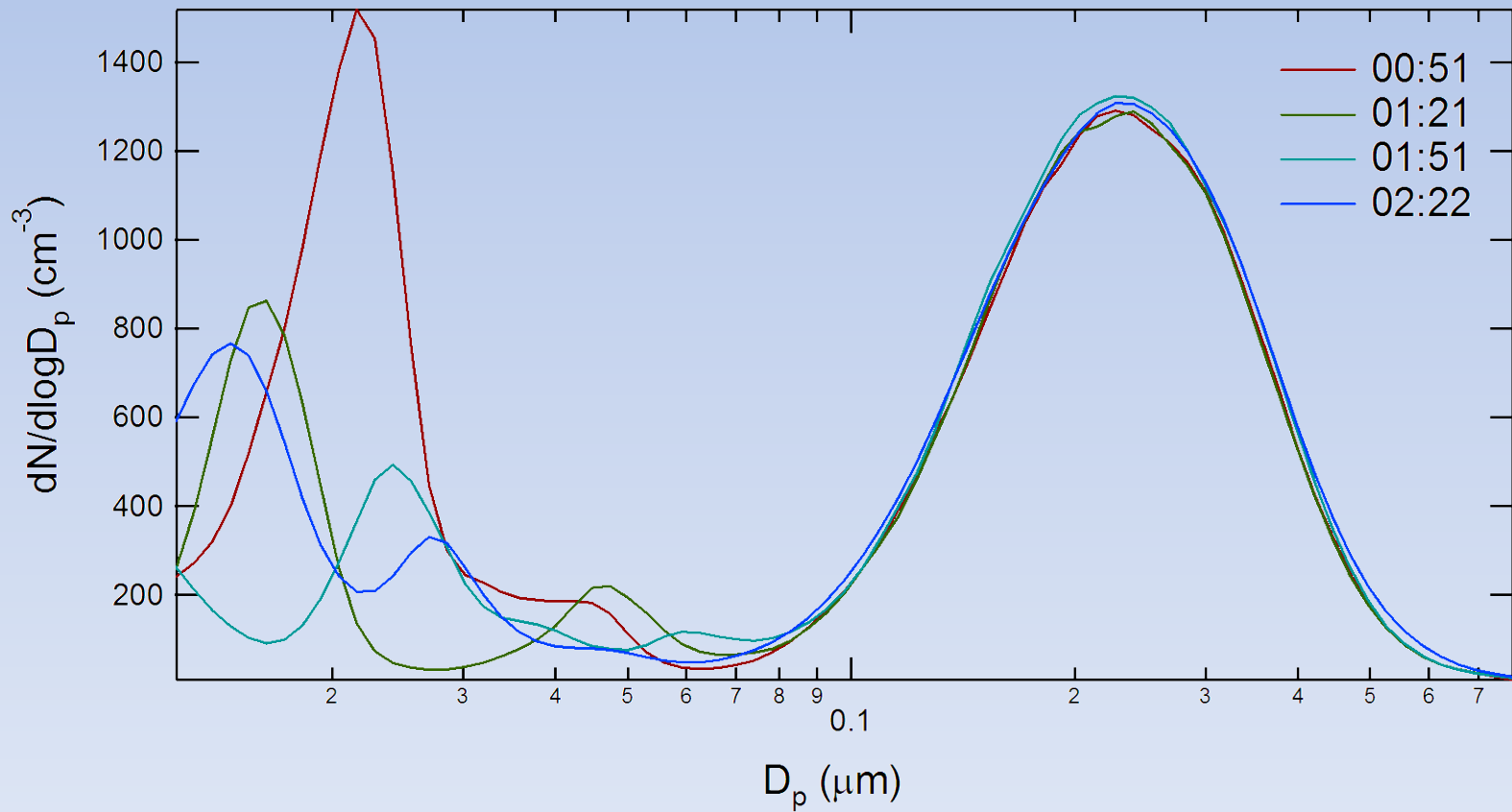


Challenge of DMA \rightarrow CCNc in Barrow

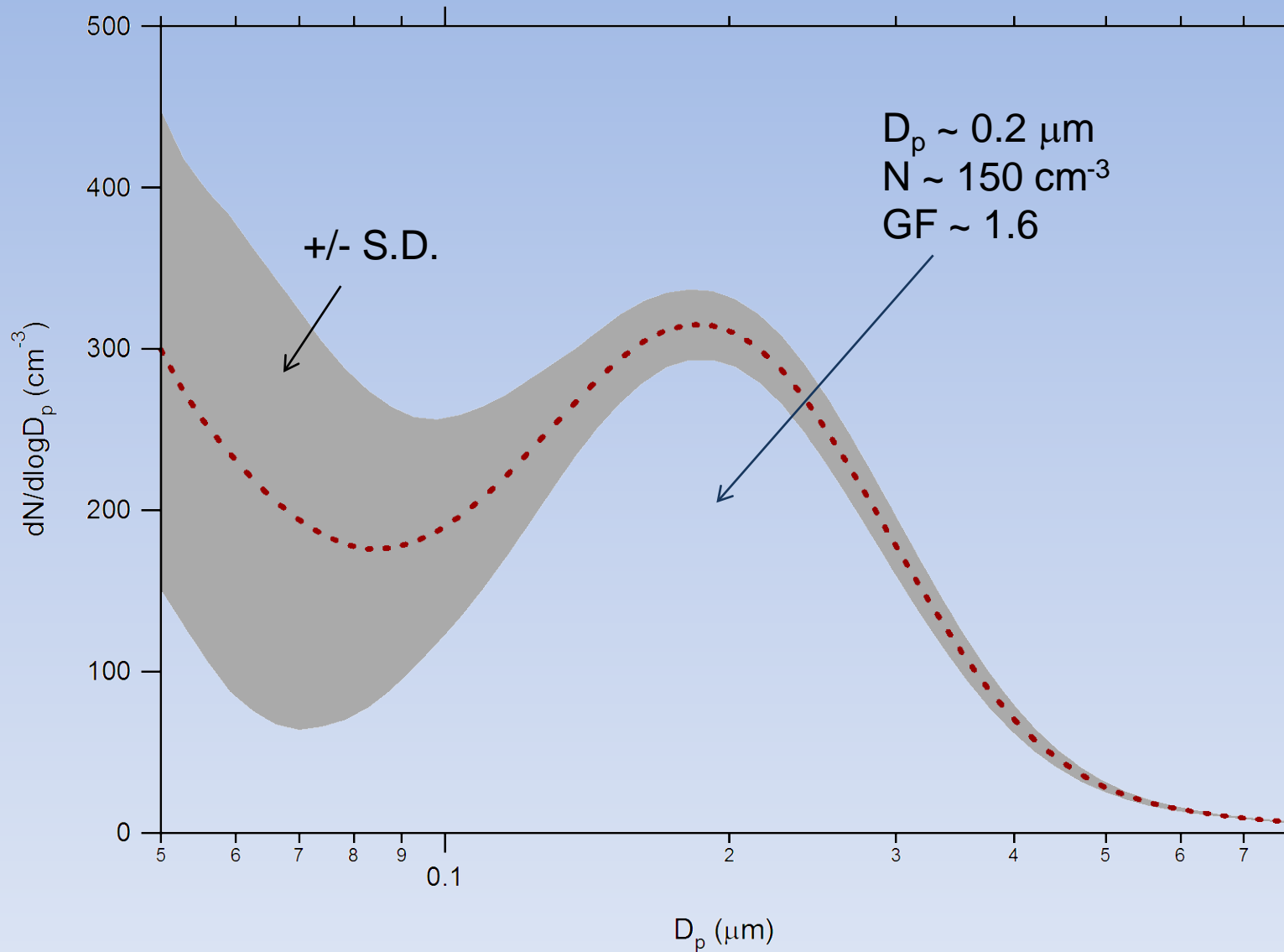


A tale of two modes

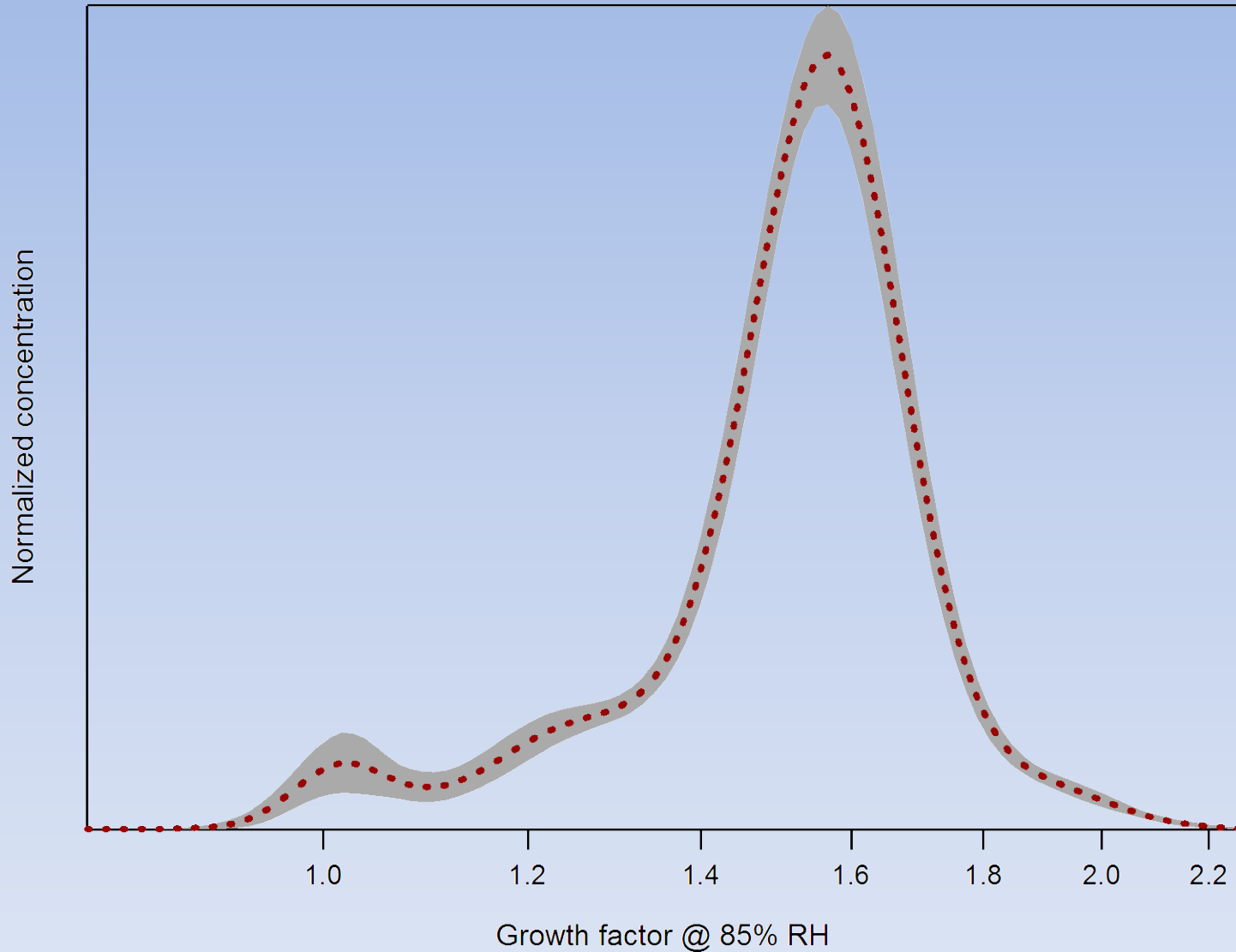
During the missed approach on April 19th



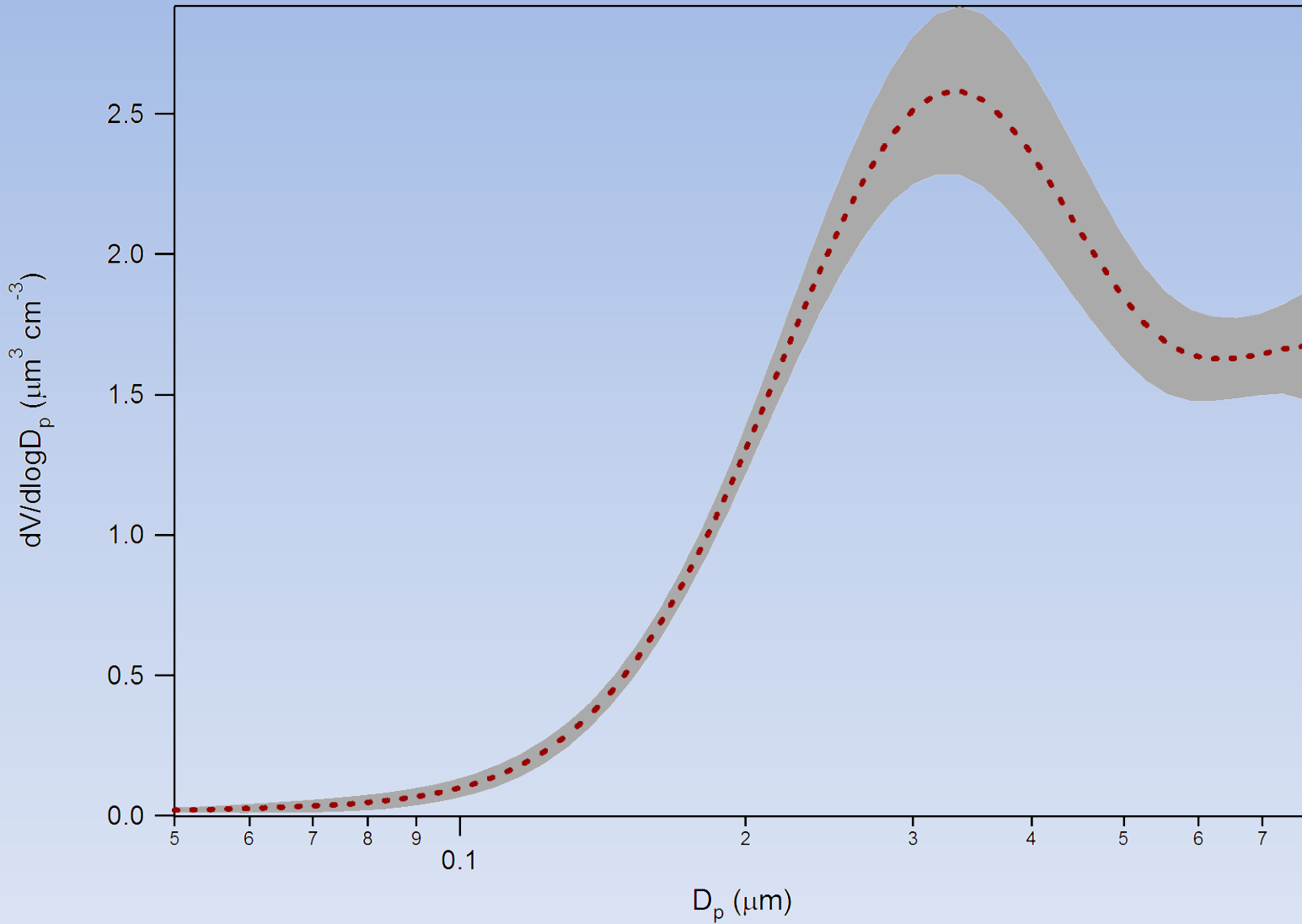
April average size distribution



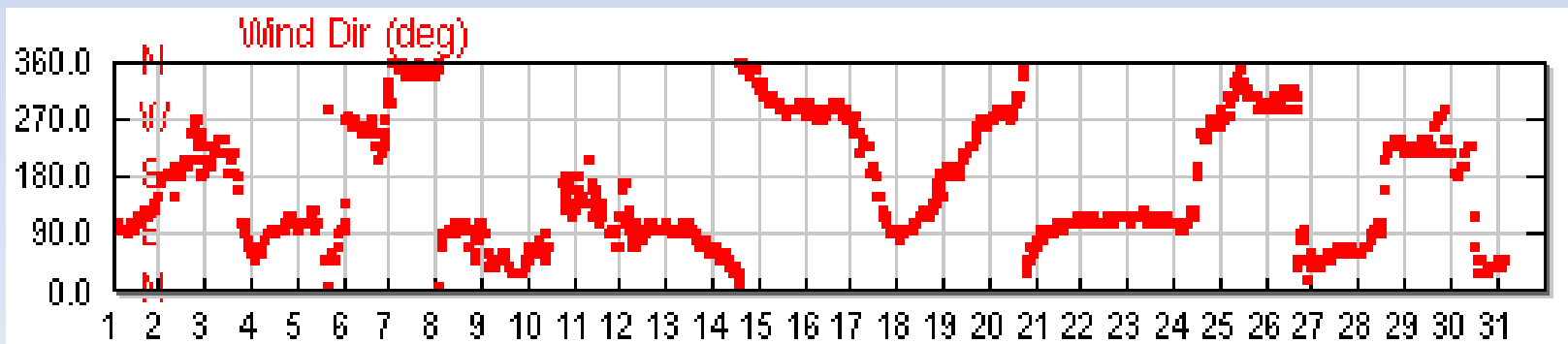
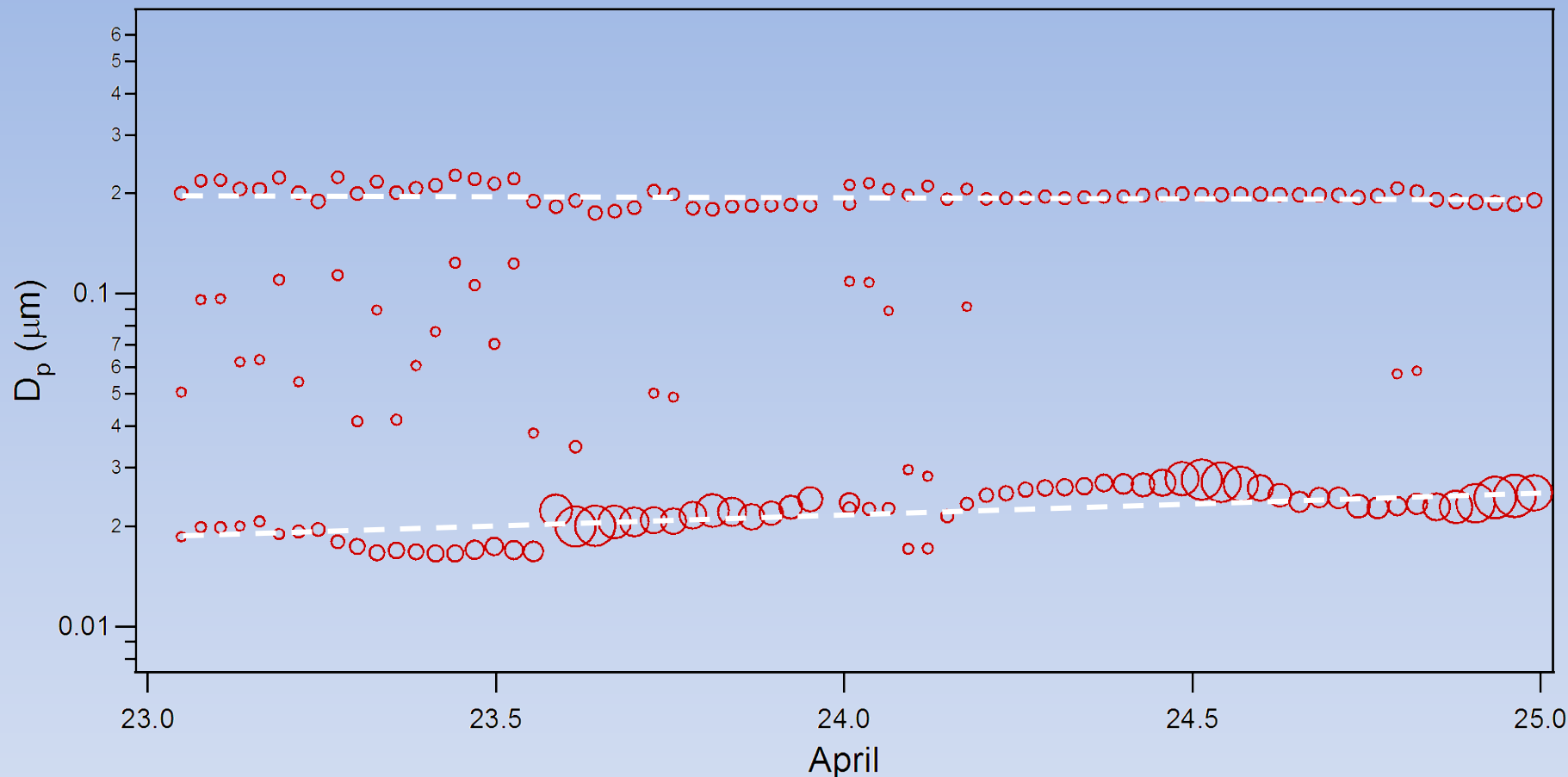
April average 0.2 μm GF distribution



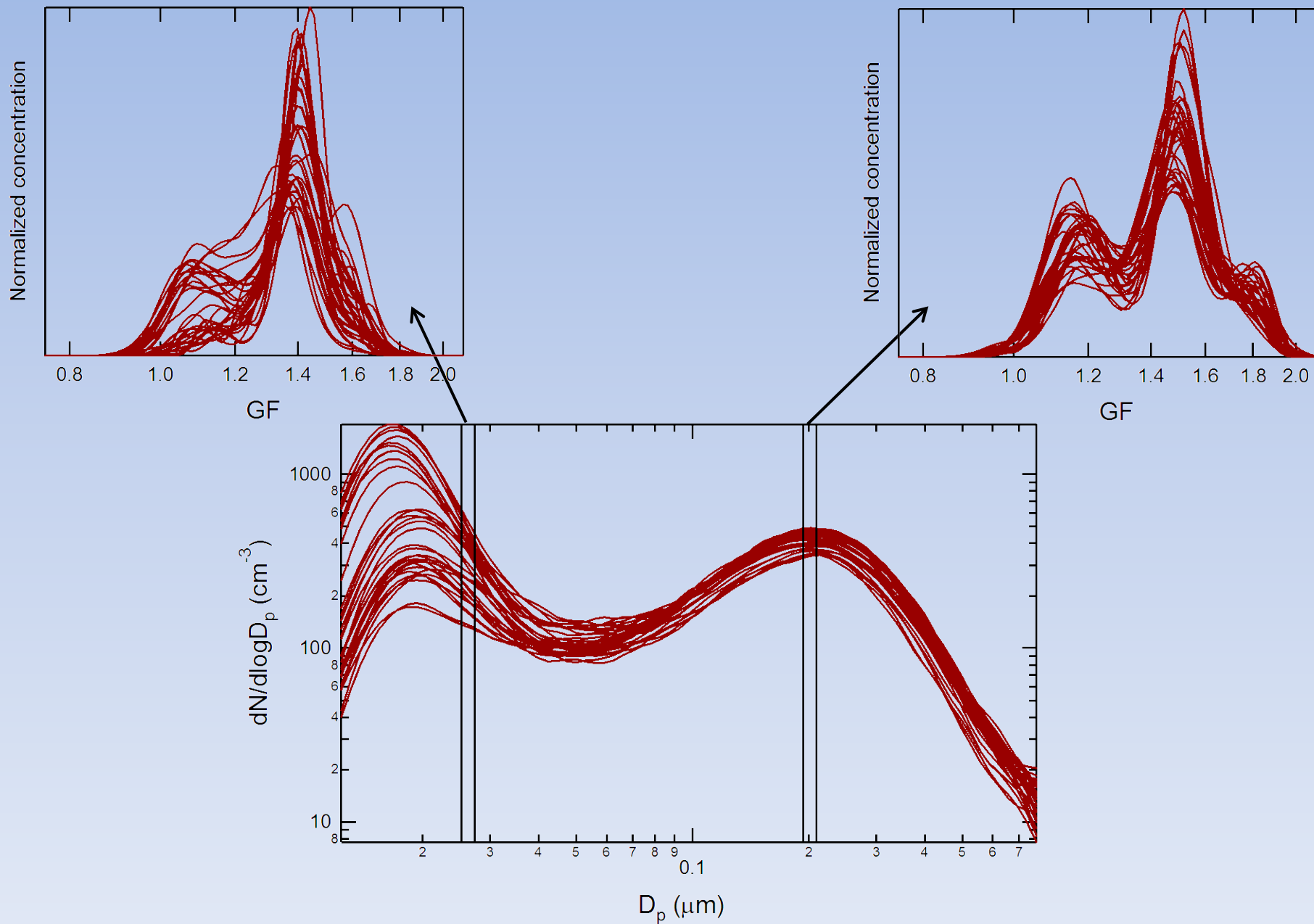
April average volume size distribution



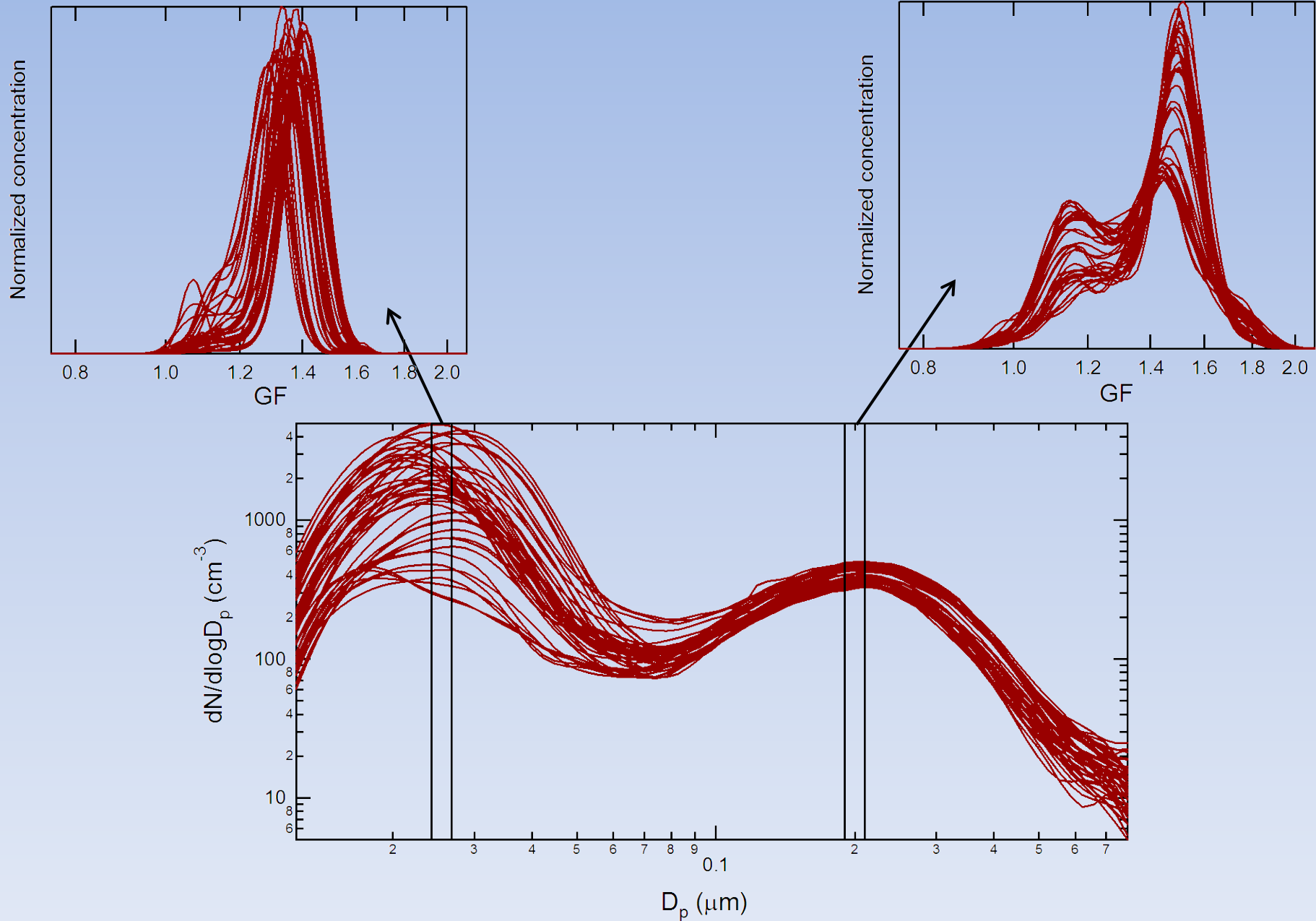
Stable small particle mode with stable E winds



April 23



April 24



Data availability

- All hygroscopic growth factor distributions in archive
- Size distributions to be added within days
- CCN activation distributions to be added as soon as possible

