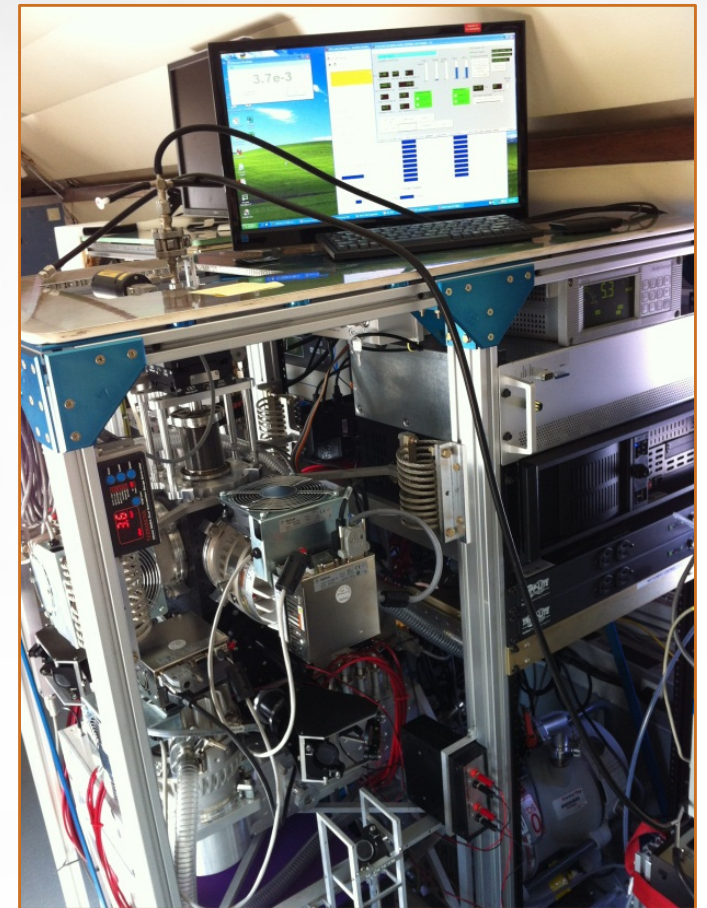
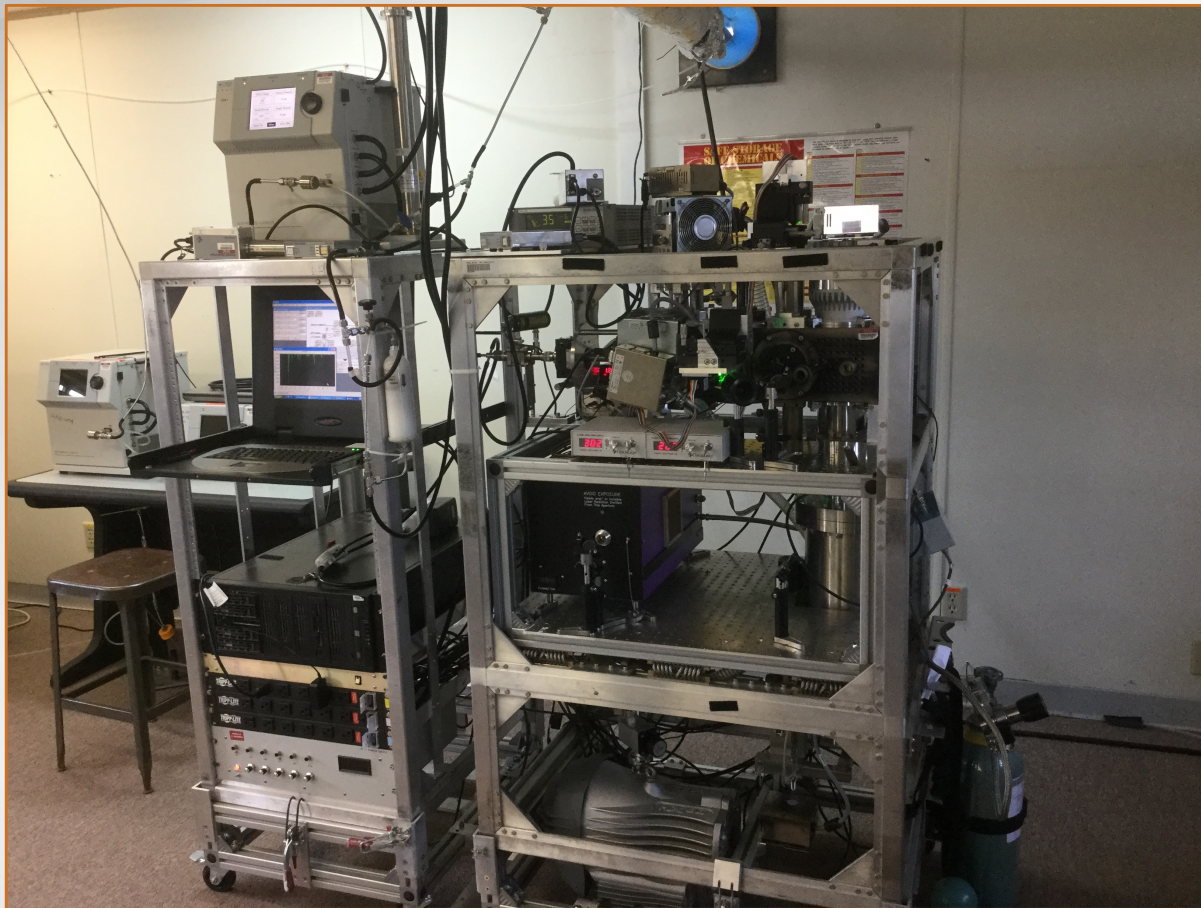
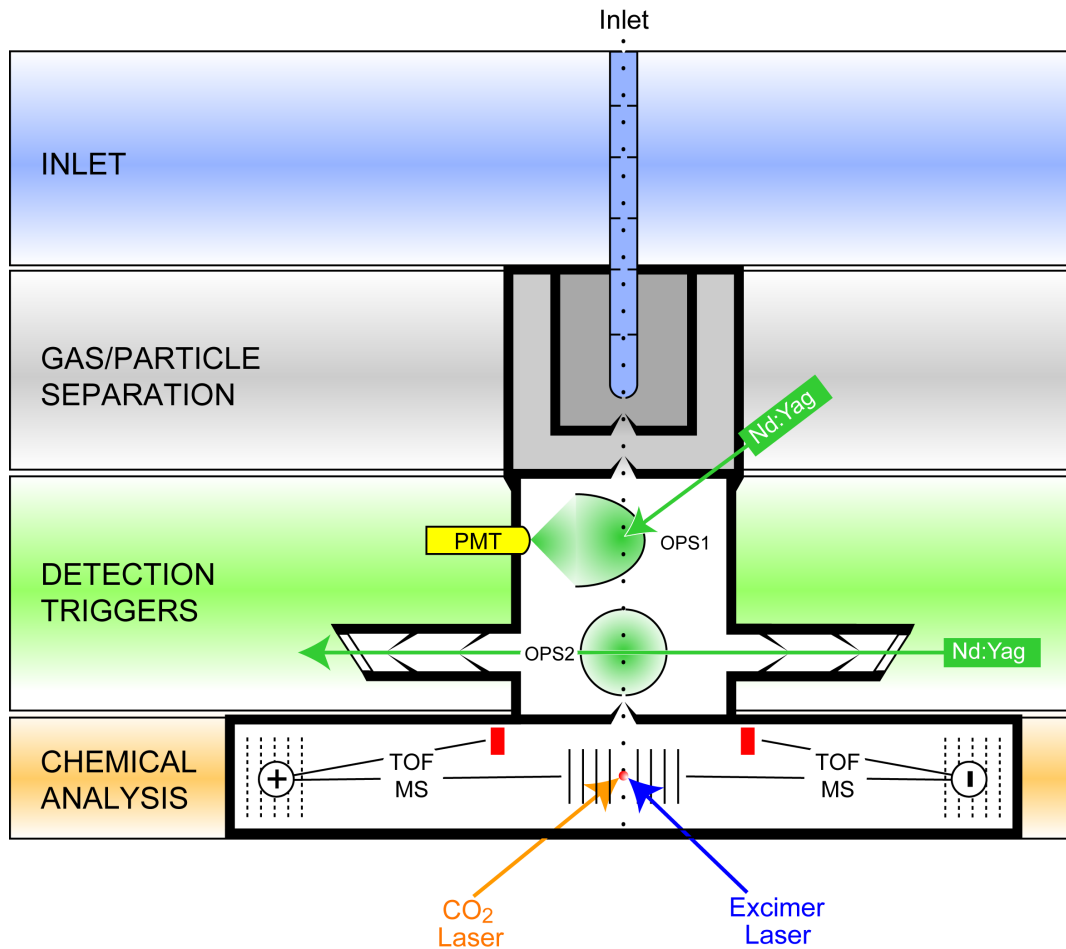


miniSPLAT and SPLAT II at HI-SCALE



Alla Zelenyuk, David Bell, Kaitlyn Suski, Rodica Lindenmaier

miniSPLAT & SPLAT II Measurements

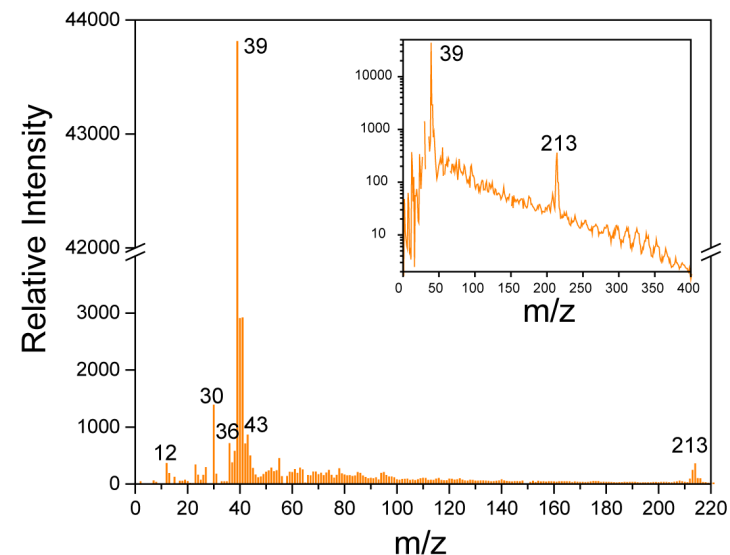
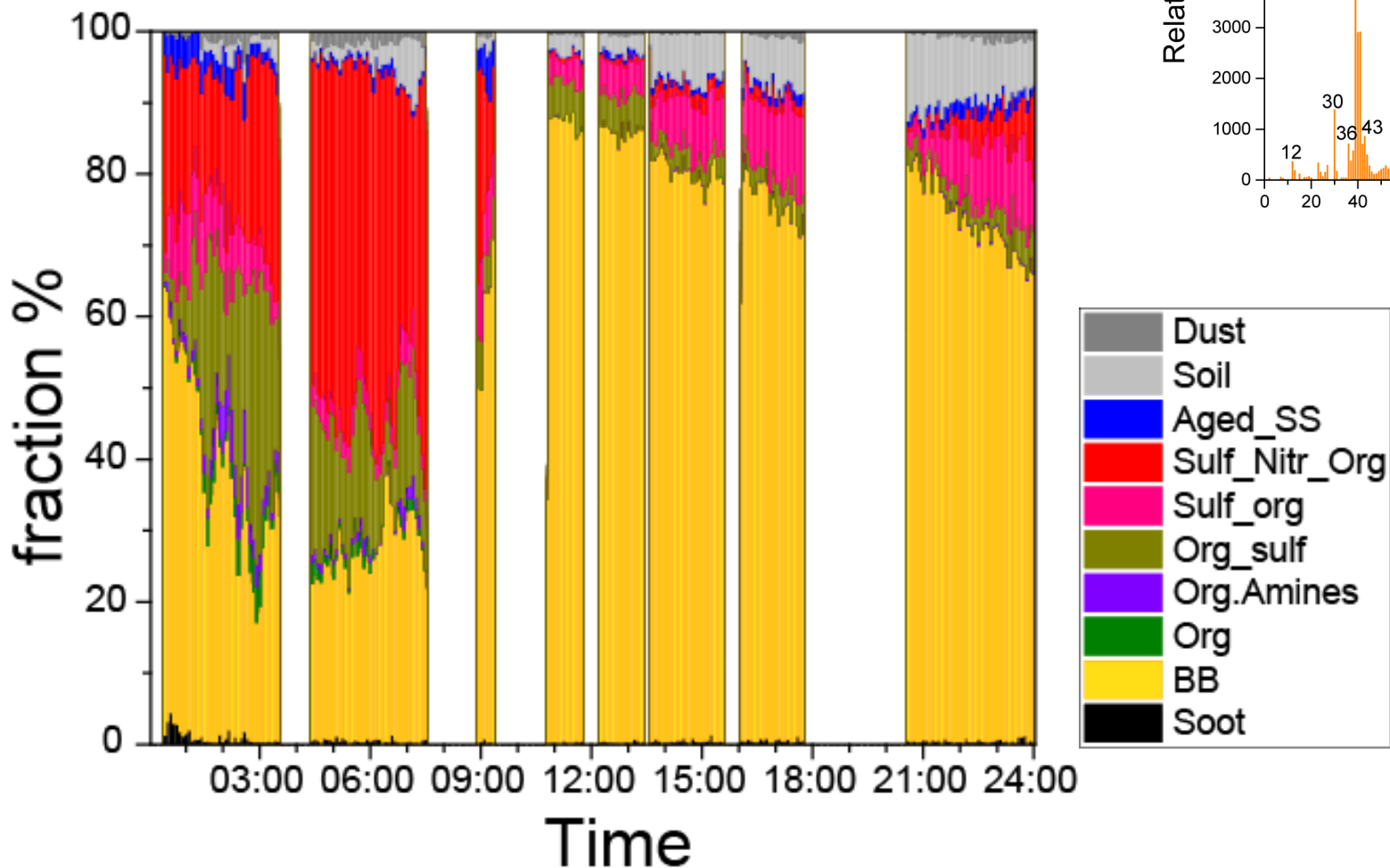


- *Real-time* size and composition of individual particles (50 nm to 3 μm , 50% at 85 nm)
- Refractory and non-refractory fractions in each particle
- Number concentrations (1 sec, particles, $d > 85$ nm)
- Size distributions (d_{va}) (~ 1 min)
- Sampling rate: size ~ 5000 p/sec, composition ~ 20 p/sec)
- *Real-time* information about particle average asphericity (1 sec)
- Particle density measurements, composition-resolved size distributions and densities

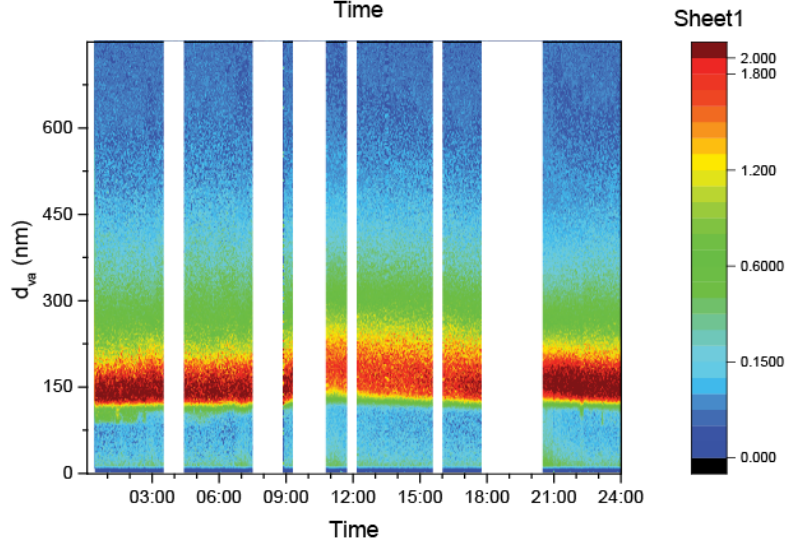
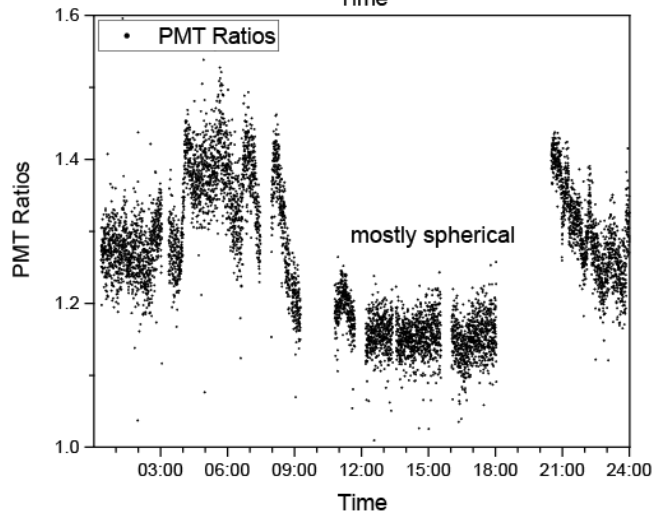
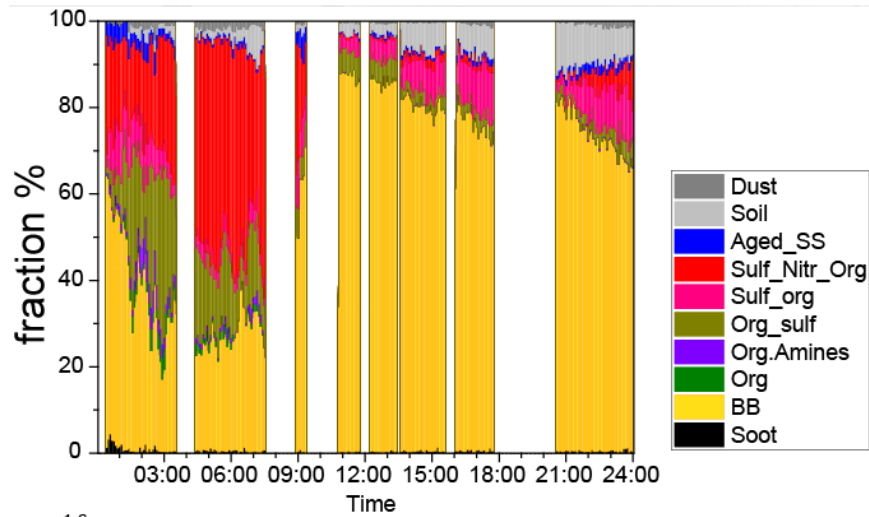
- ✓ During HI-SCALE miniSPLAT participated in all flights, sampled aerosol through the isokinetic and CVI inlets
- ✓ During HI-SCALE SPLAT II operated nearly 24/7

SPLAT II measurements at the SGP site on May 5

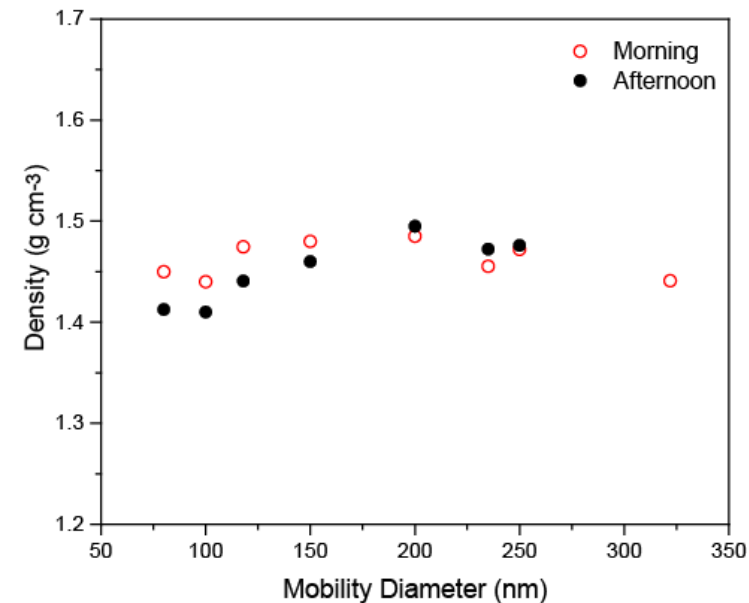
- Single particle analysis indicates that the vast majority of particles sampled on May 5 were composed of biomass burning (BB, e.g. refractory tar balls)



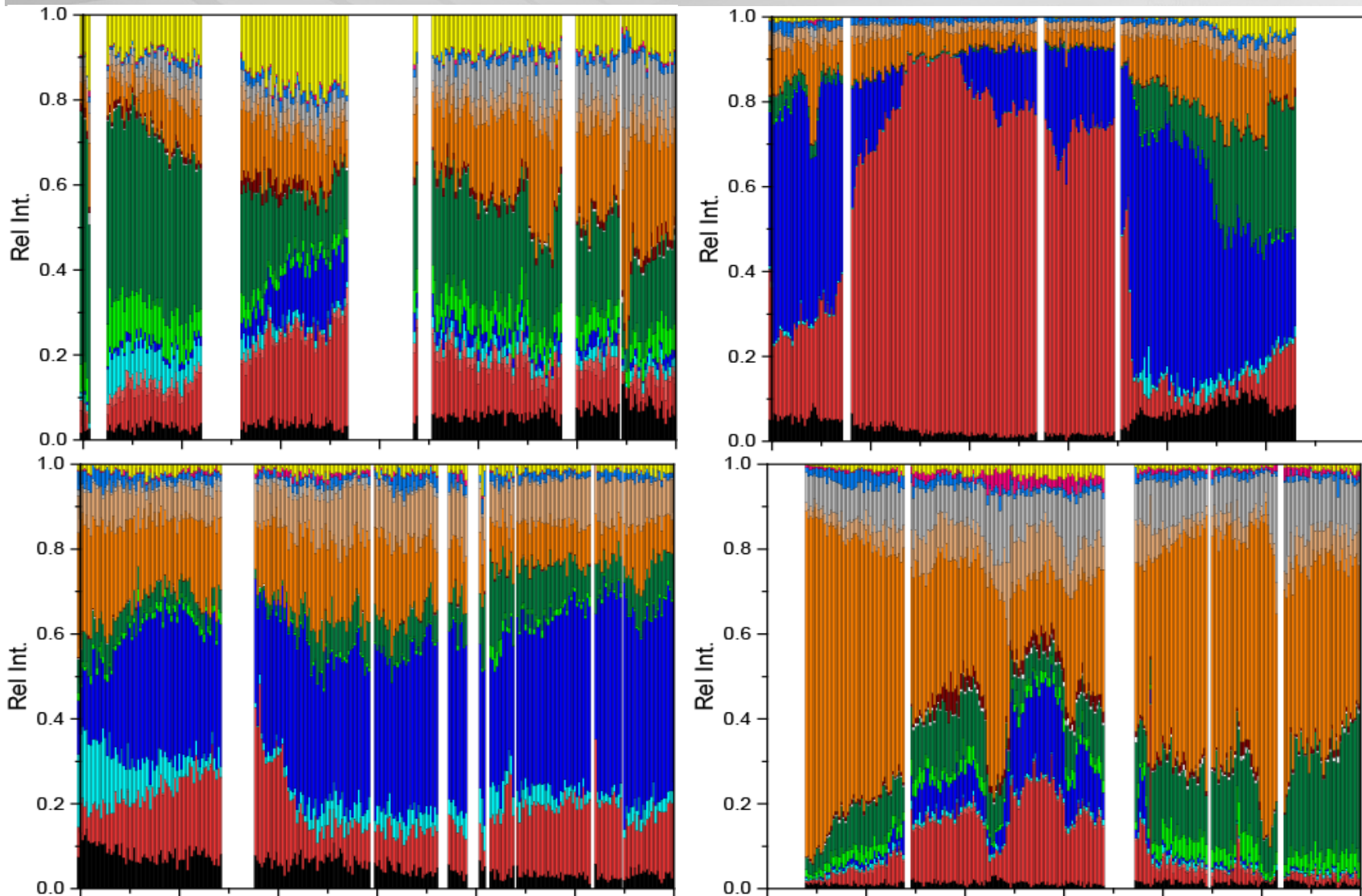
SPLAT II measurements on May 5



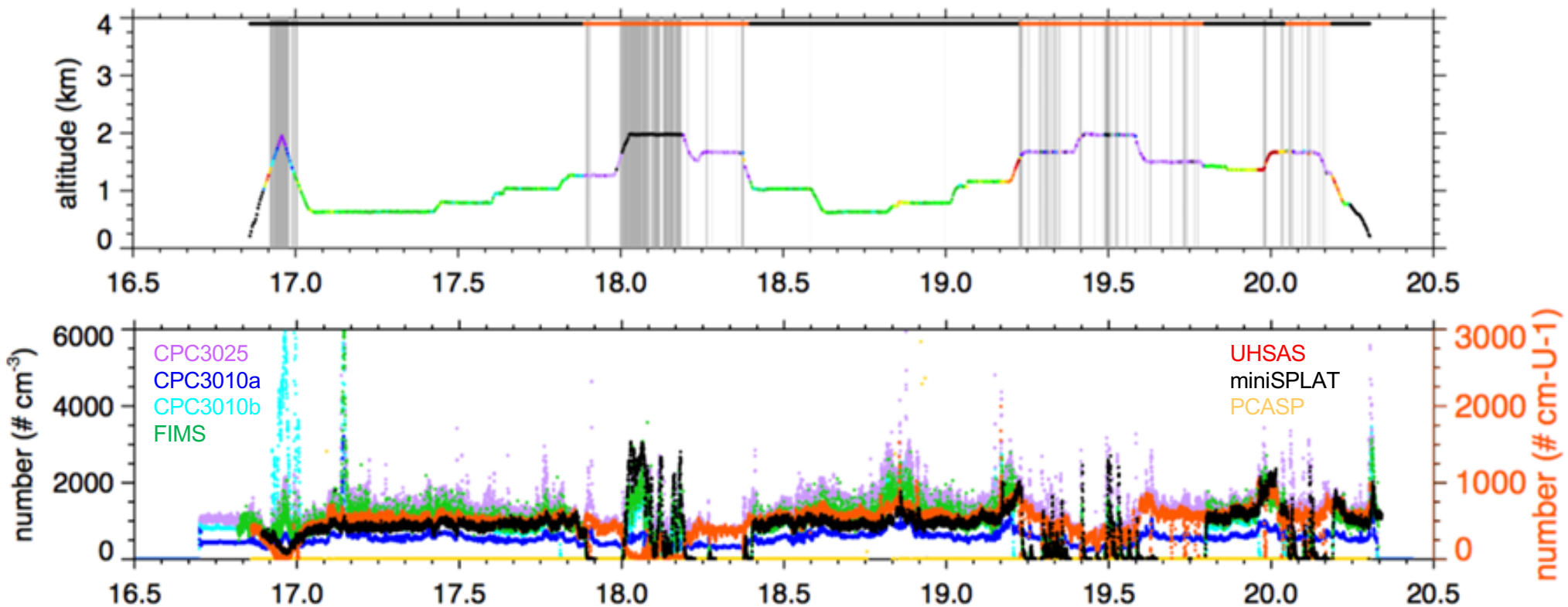
- Single particle analysis indicates that the vast majority of particles sampled on May 5 were composed of biomass burning (BB, e.g. refractory tar balls)
- Particle shape measurements show that most of these particles were spherical
- The BB particles are larger and have wide distribution
- The density of these particles is $\sim 1.45 \text{ g cm}^{-3}$



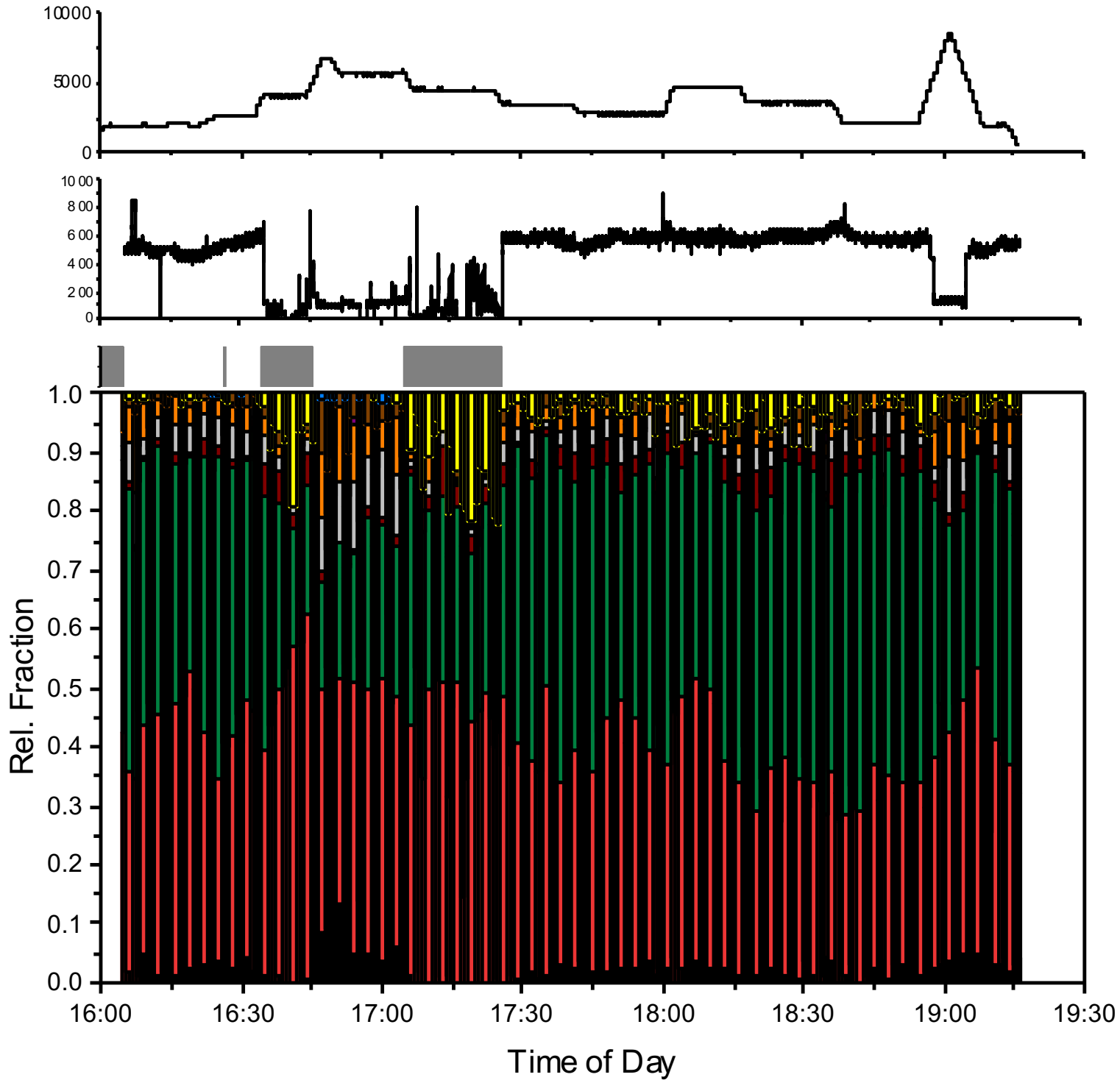
Temporal Evolution and Variability of Aerosol Composition at the SGP site

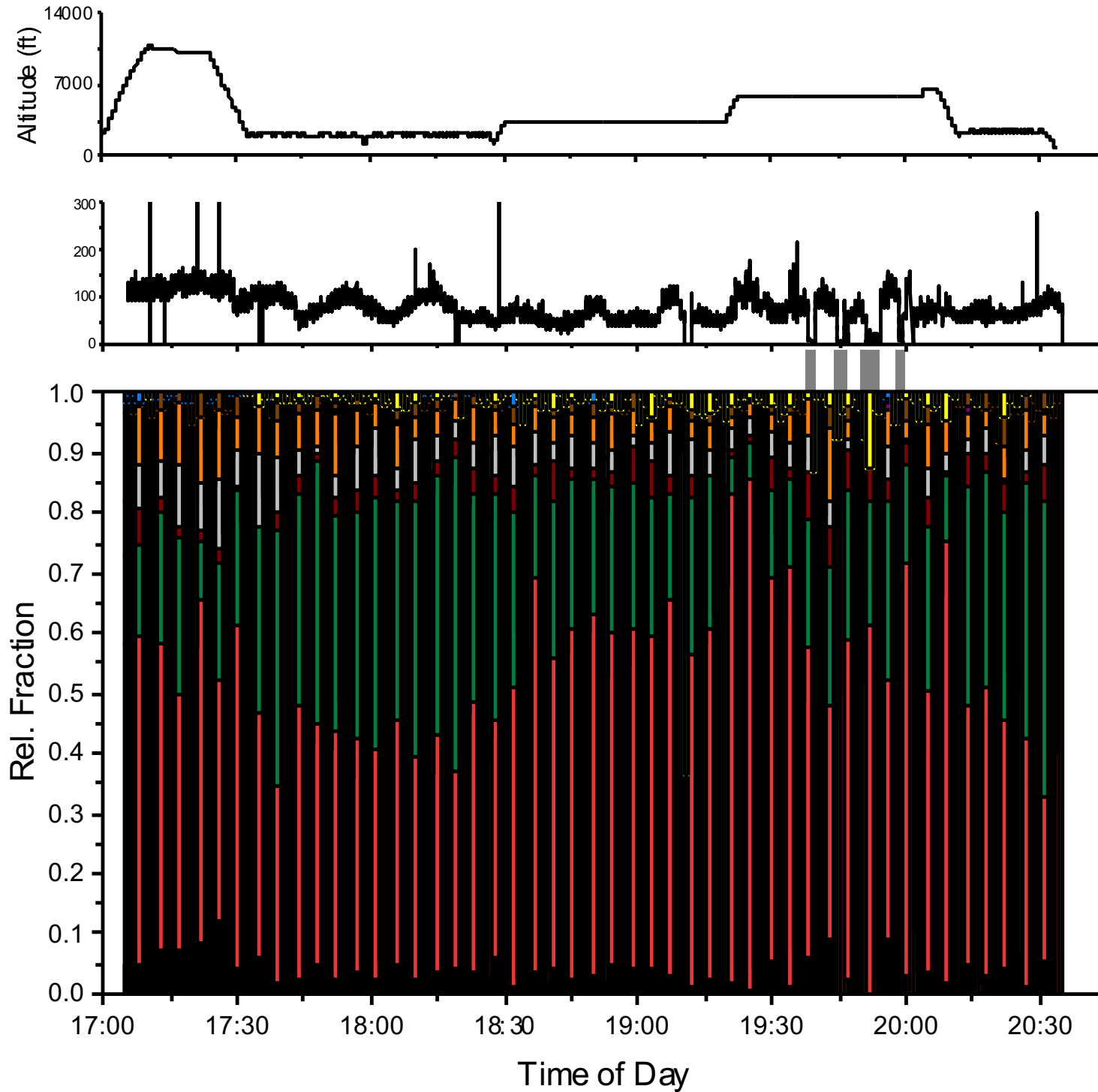


miniSPLAT II measurements on G-1: Number Concentrations



- miniSPLAT measured number concentrations of particles sampled through the isokinetic inlet (1 sec, particles, $d > 85$ nm) are in a good quantitative agreement with UHSAS data
- miniSPLAT measured number concentrations of particles sampled through the CVI inlet (1 sec, particles, $d > 85$ nm) are in a good agreement with FIMS data

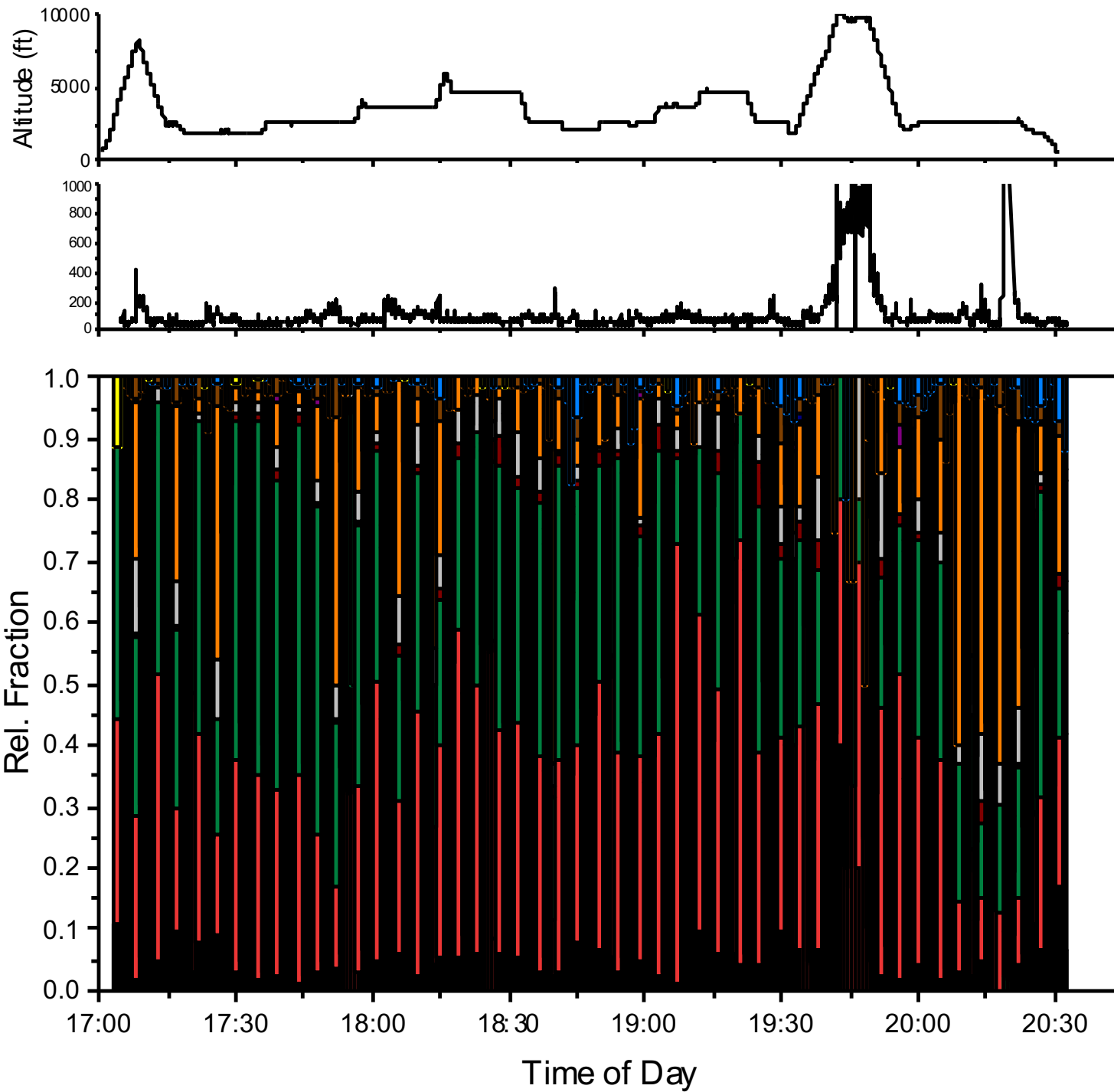


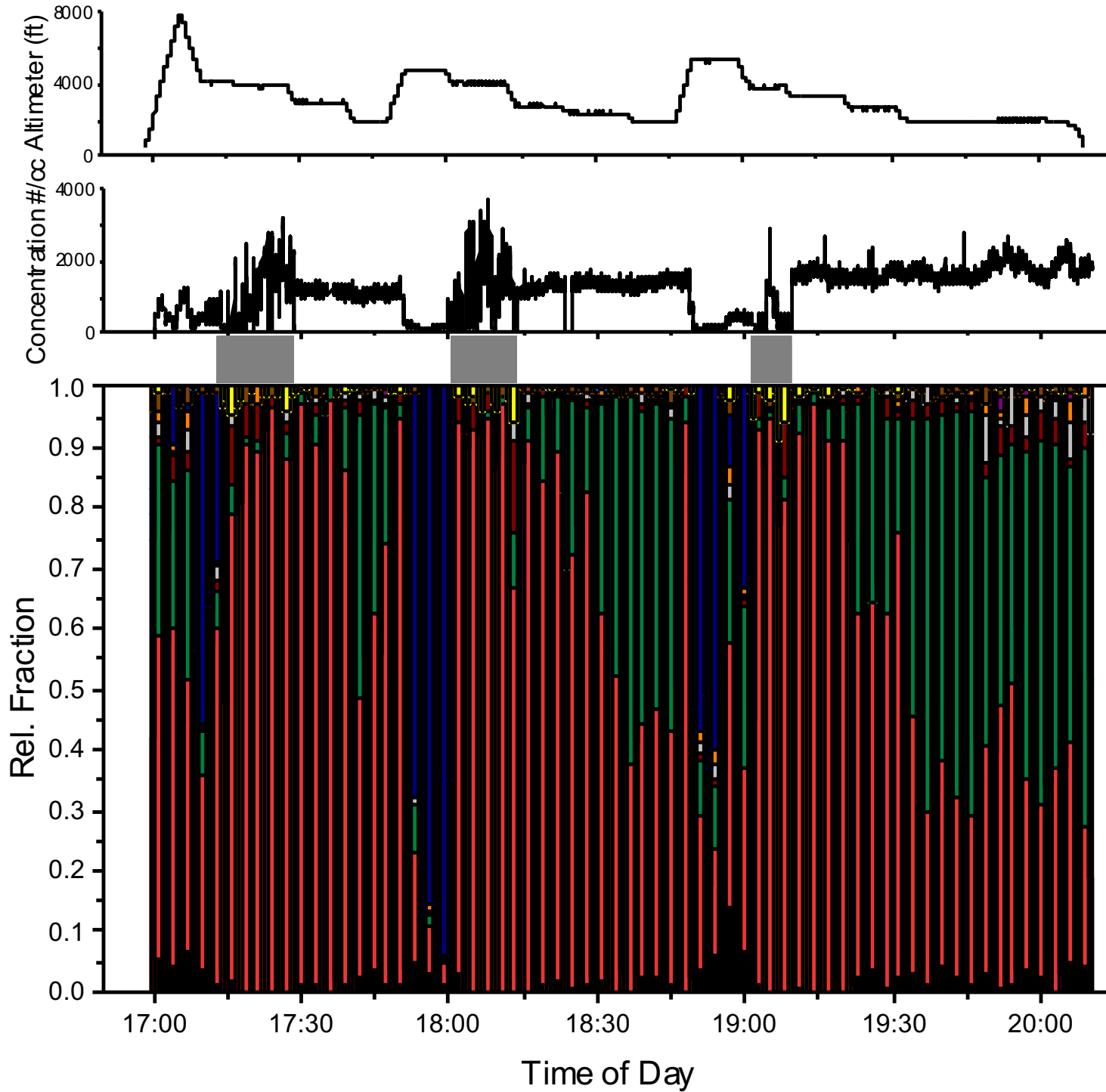




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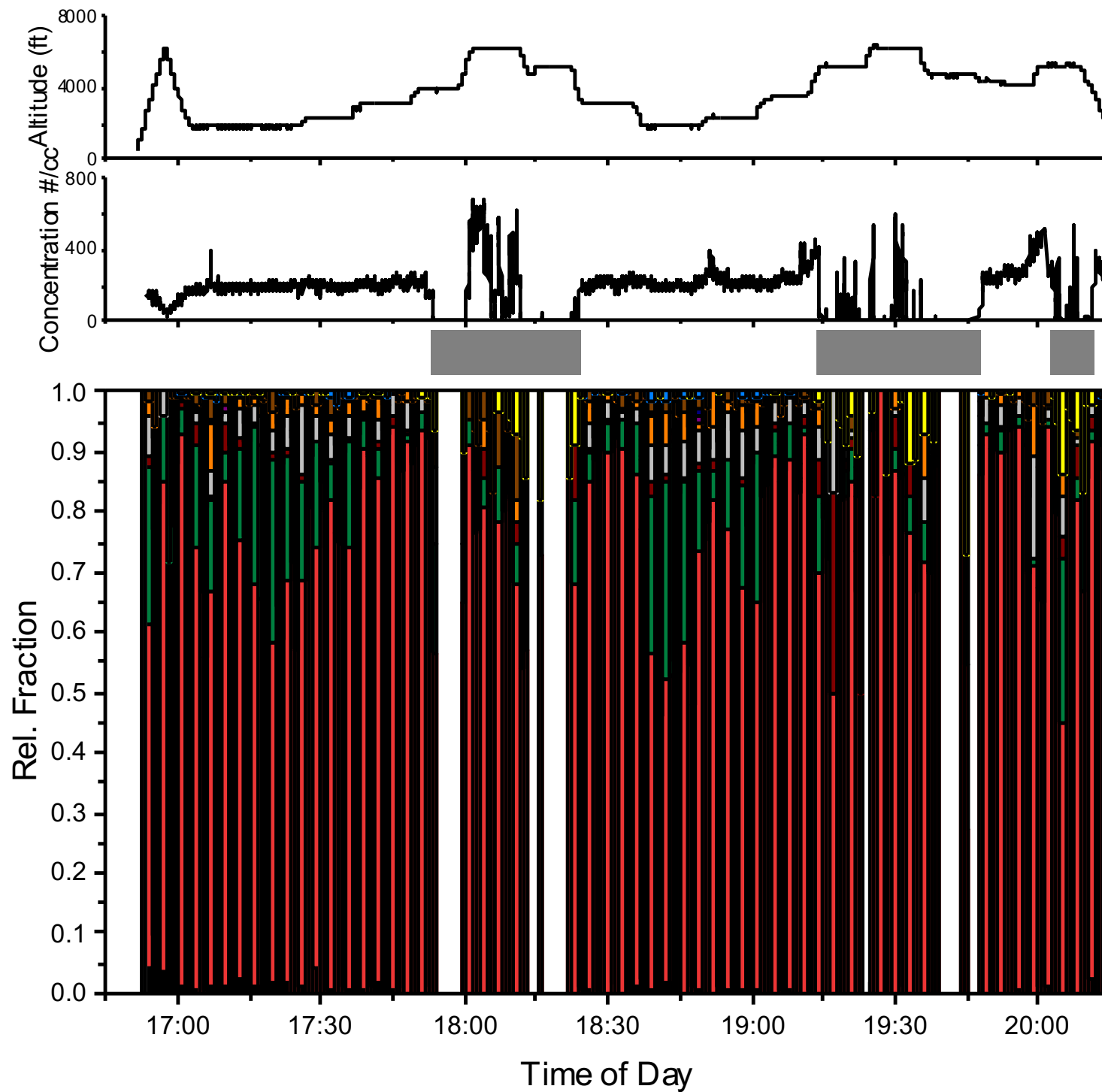


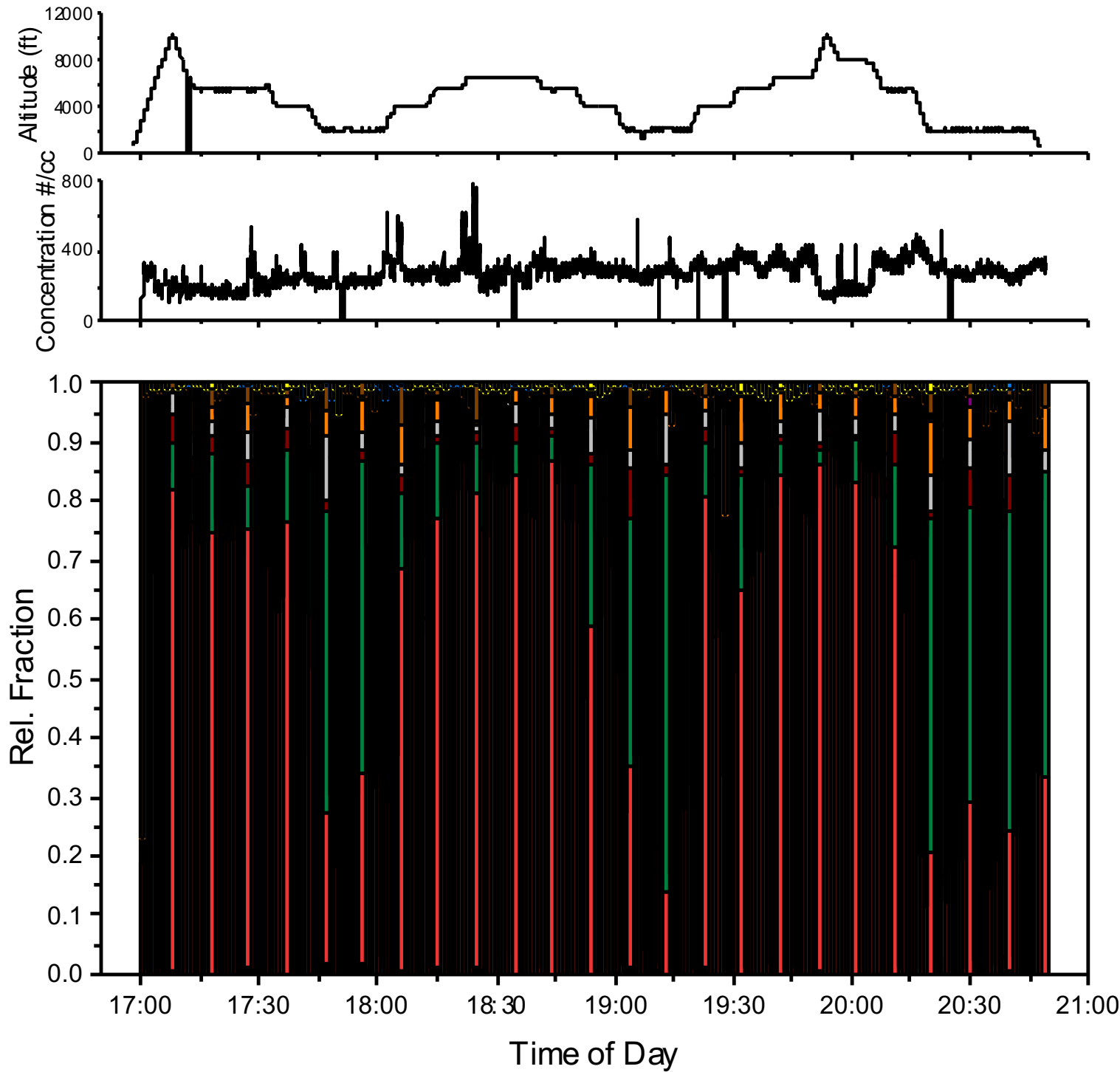




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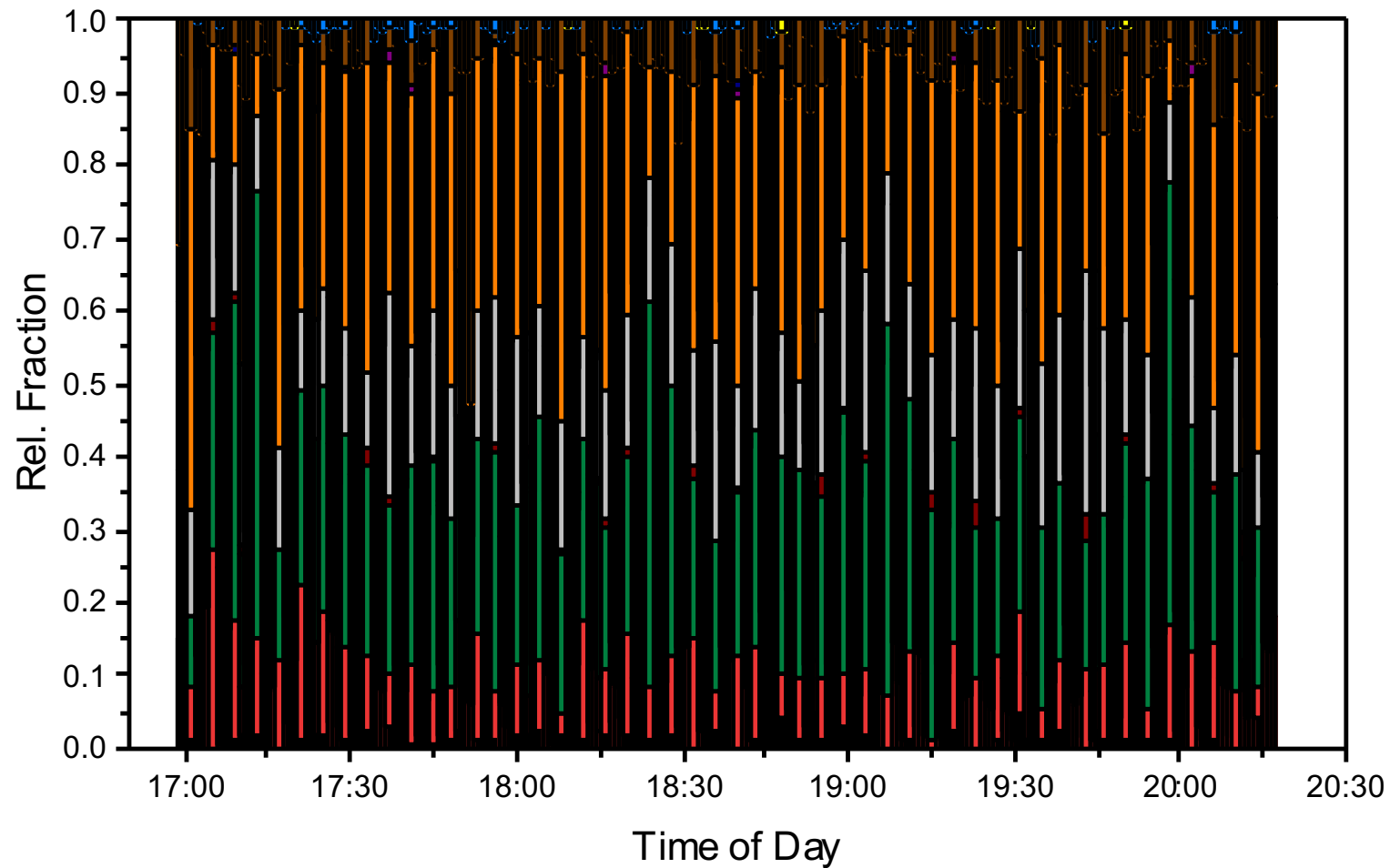
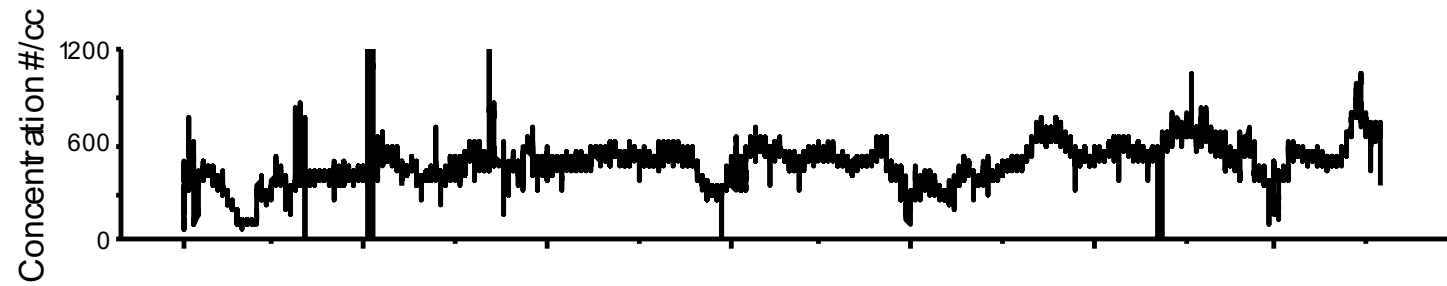
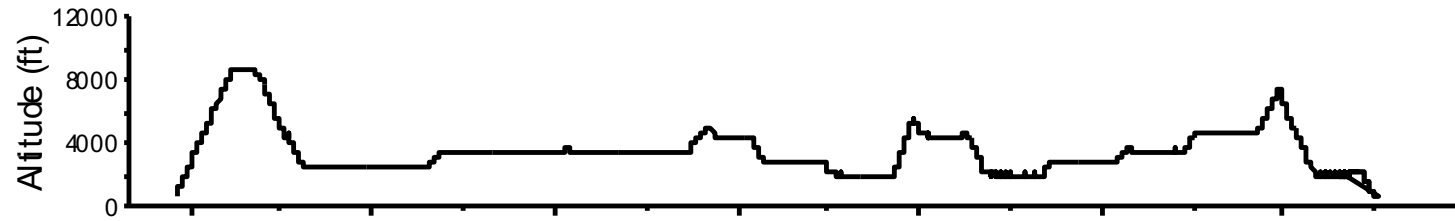






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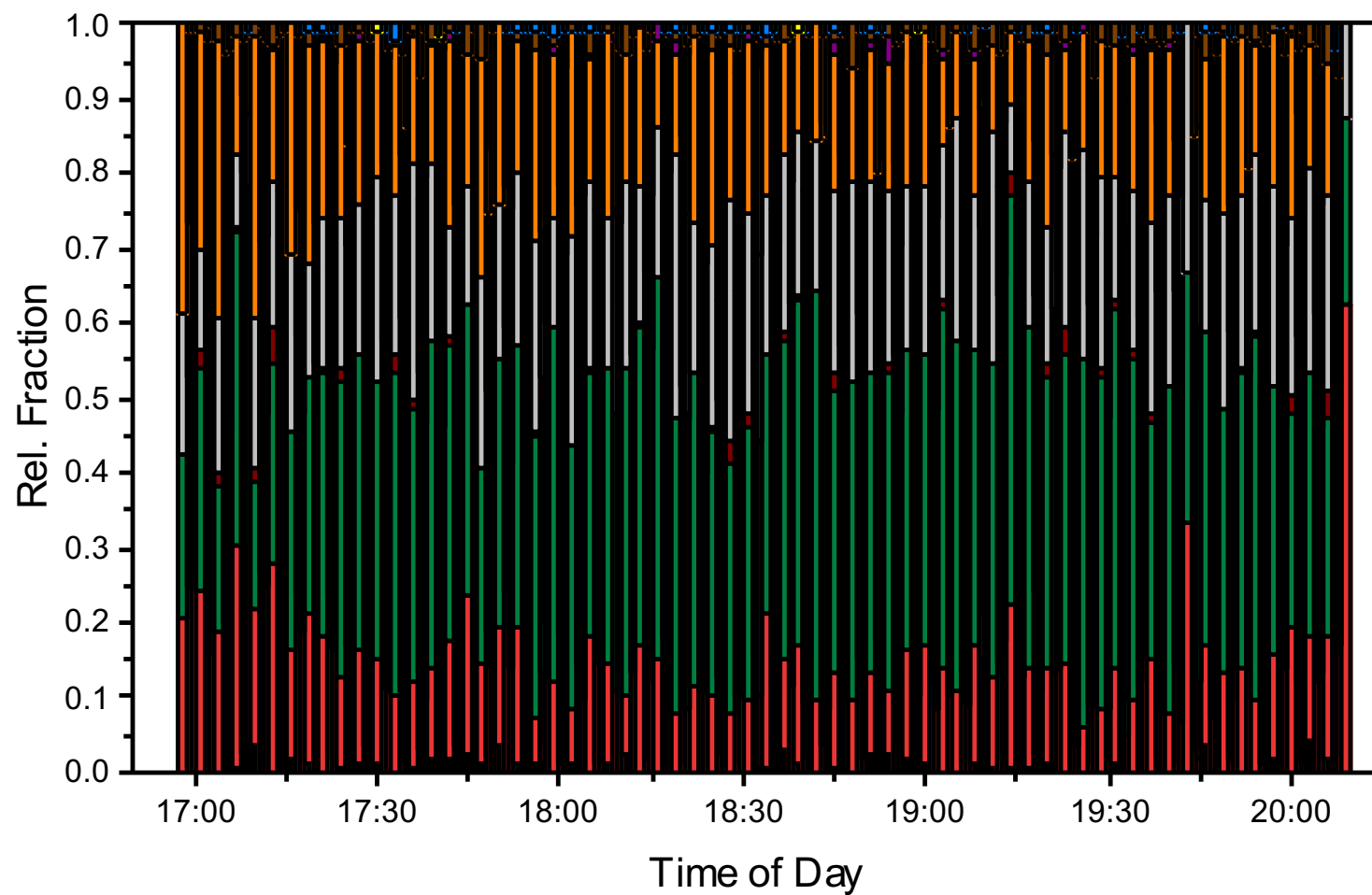
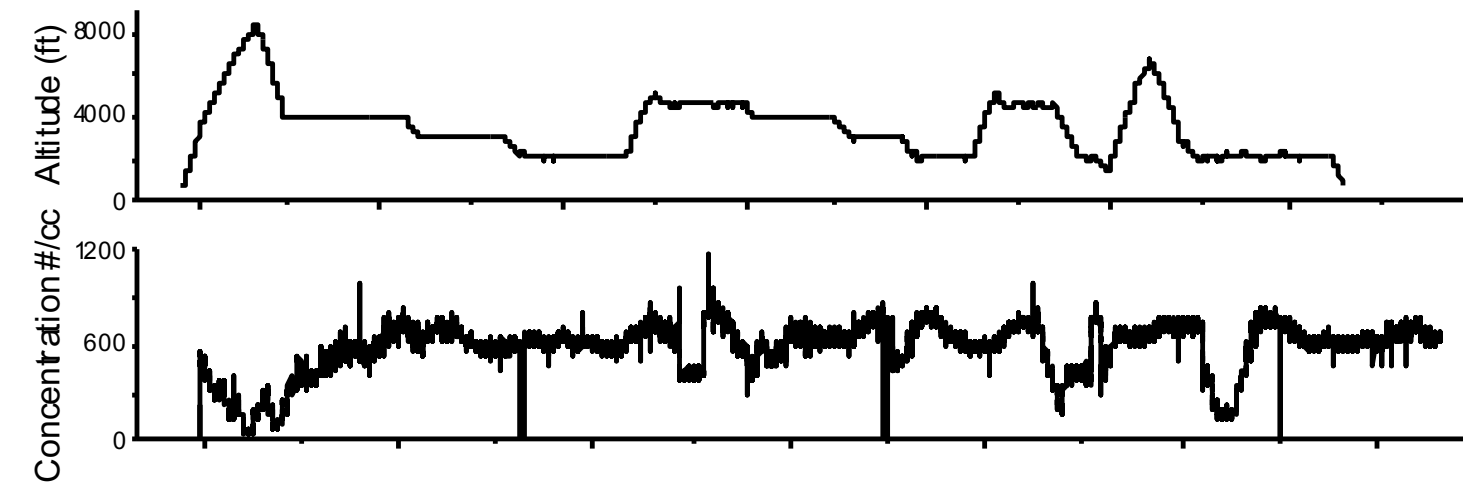
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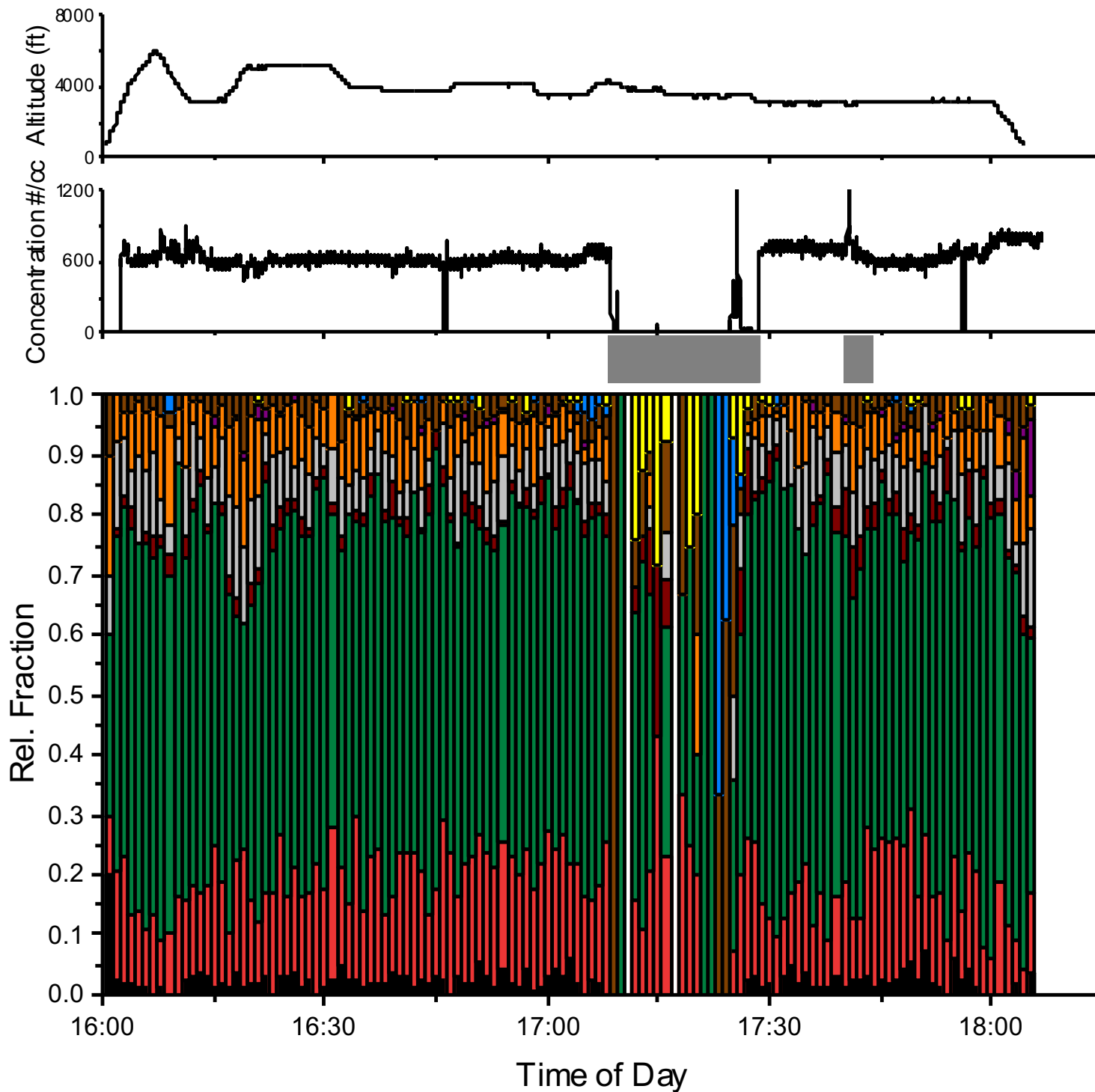
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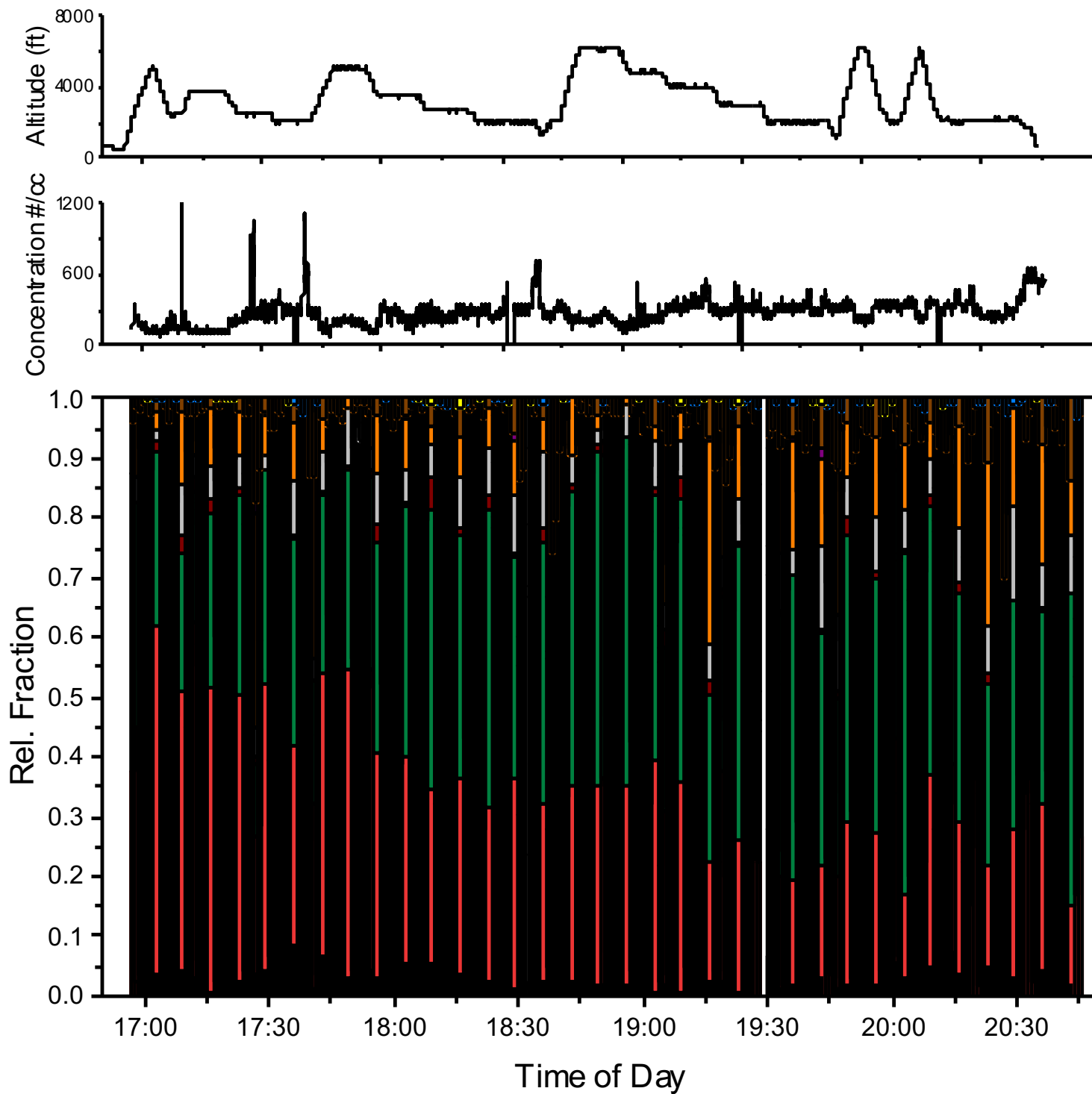
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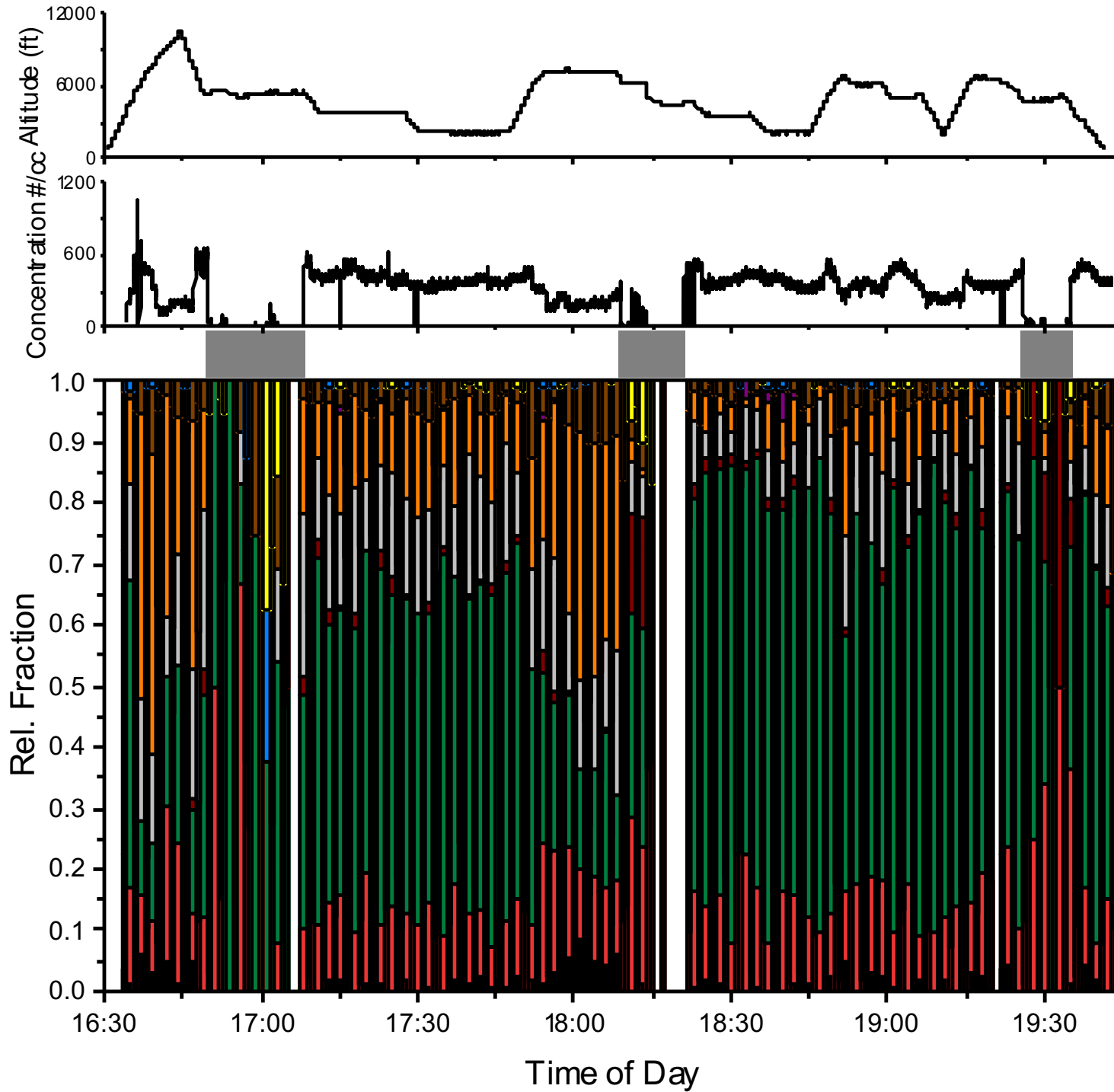


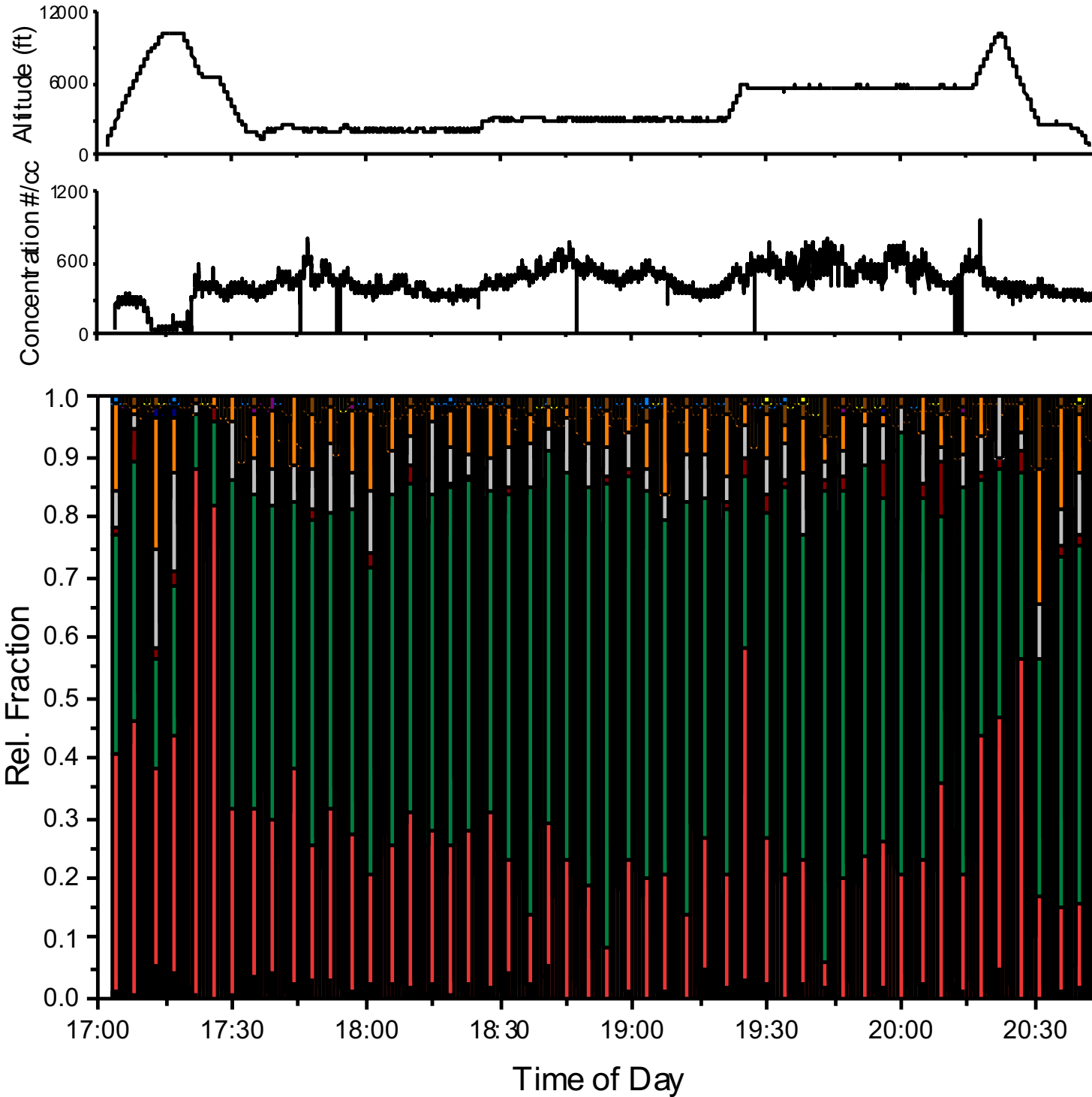


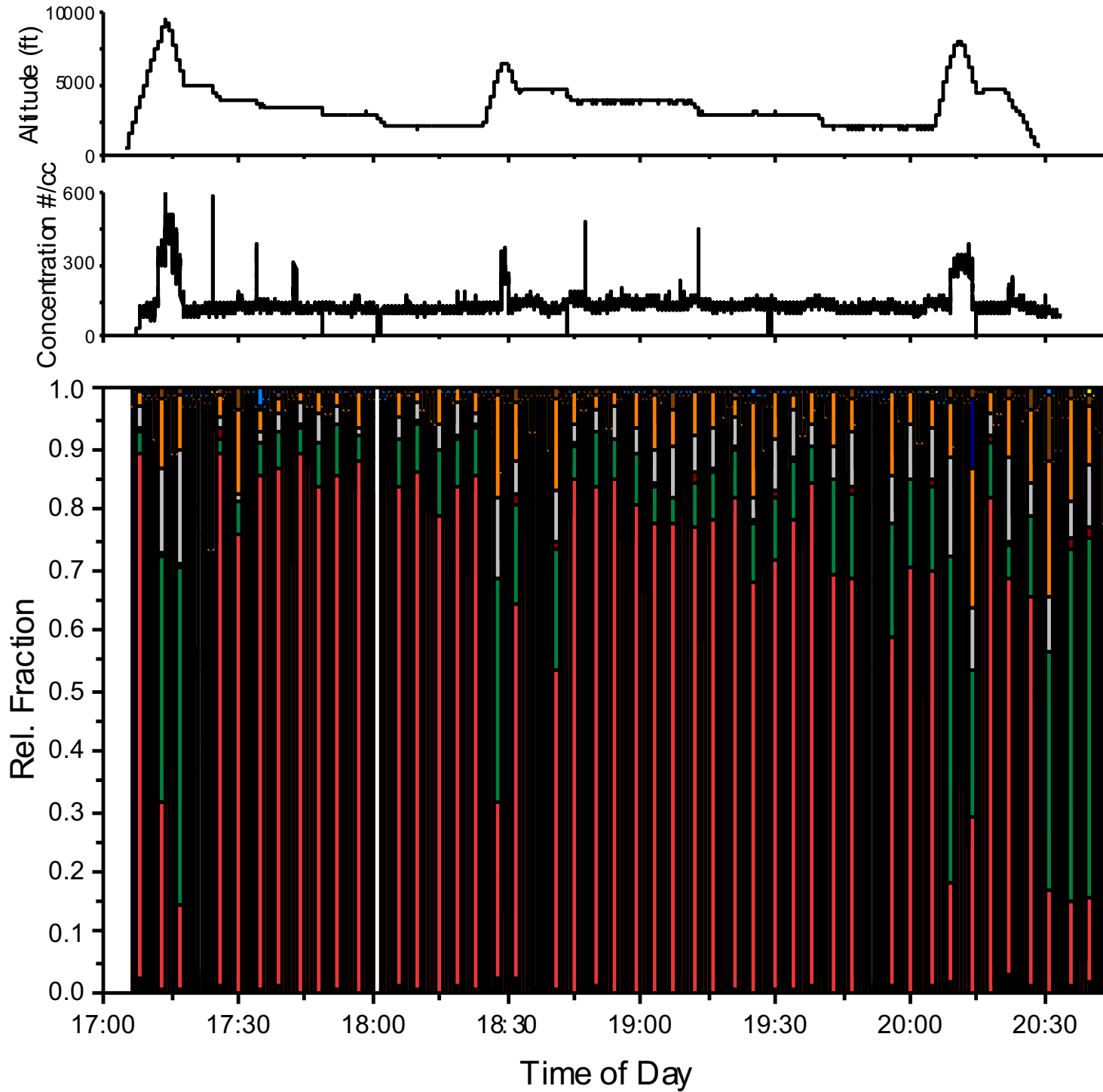
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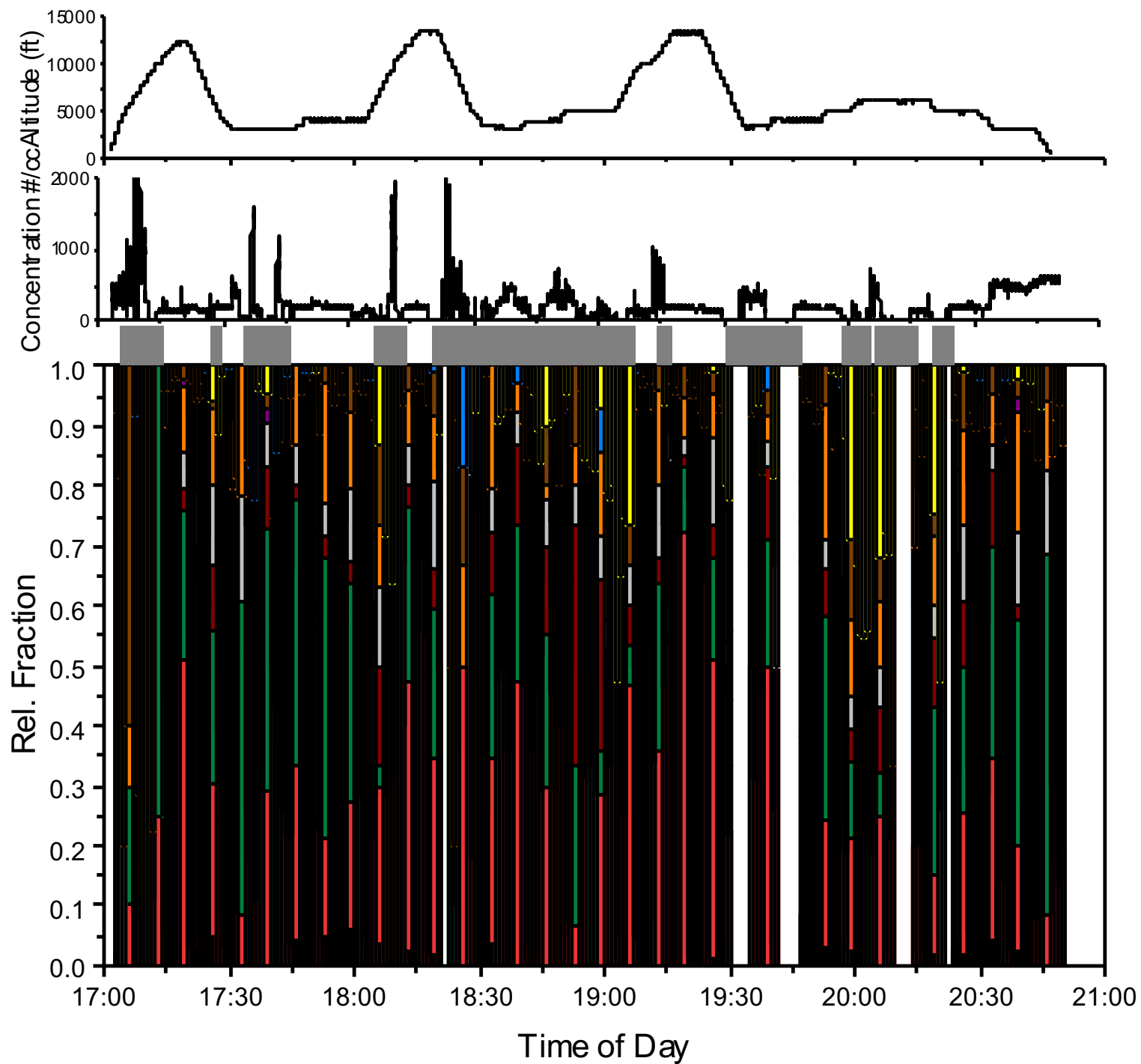


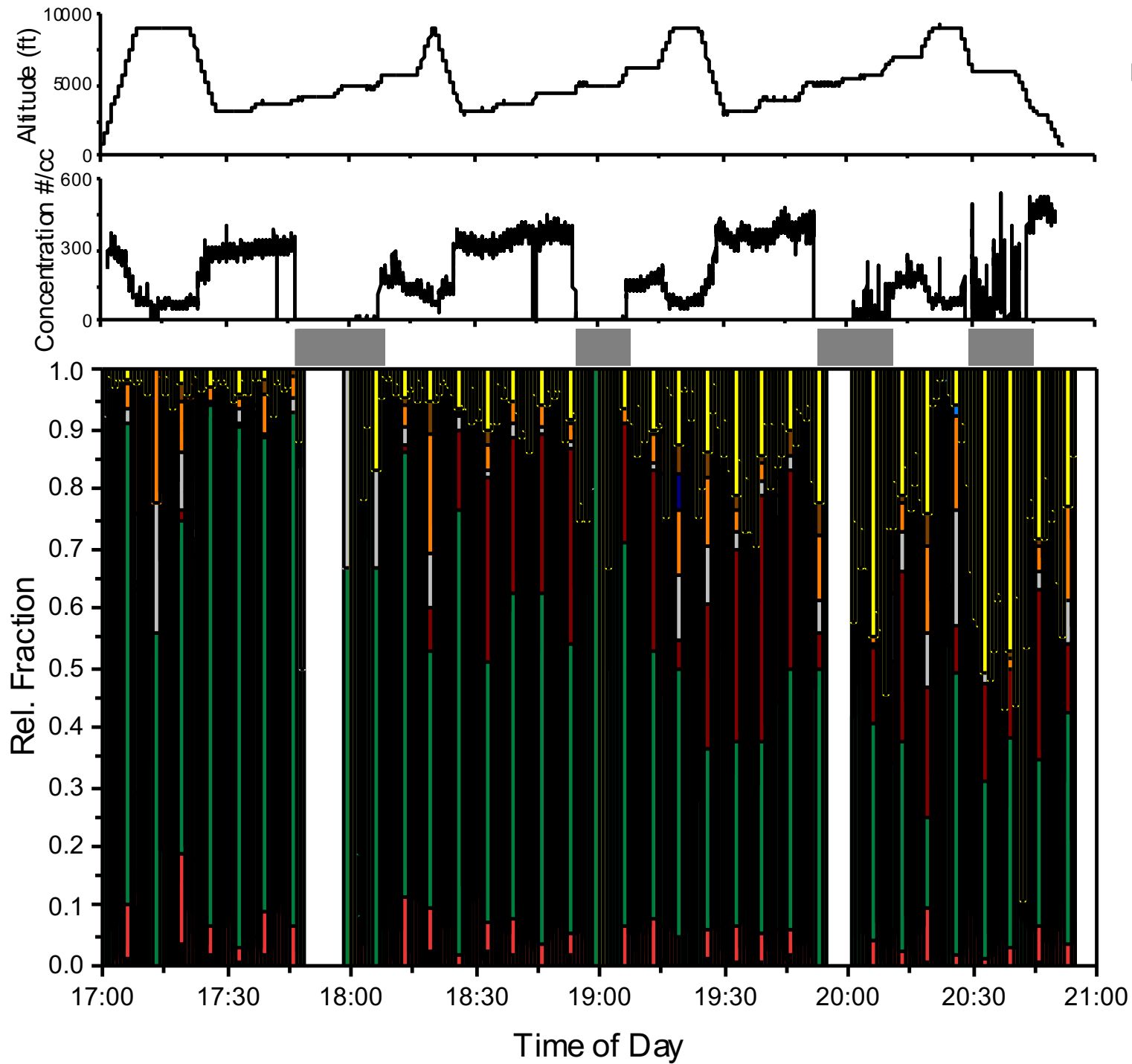




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