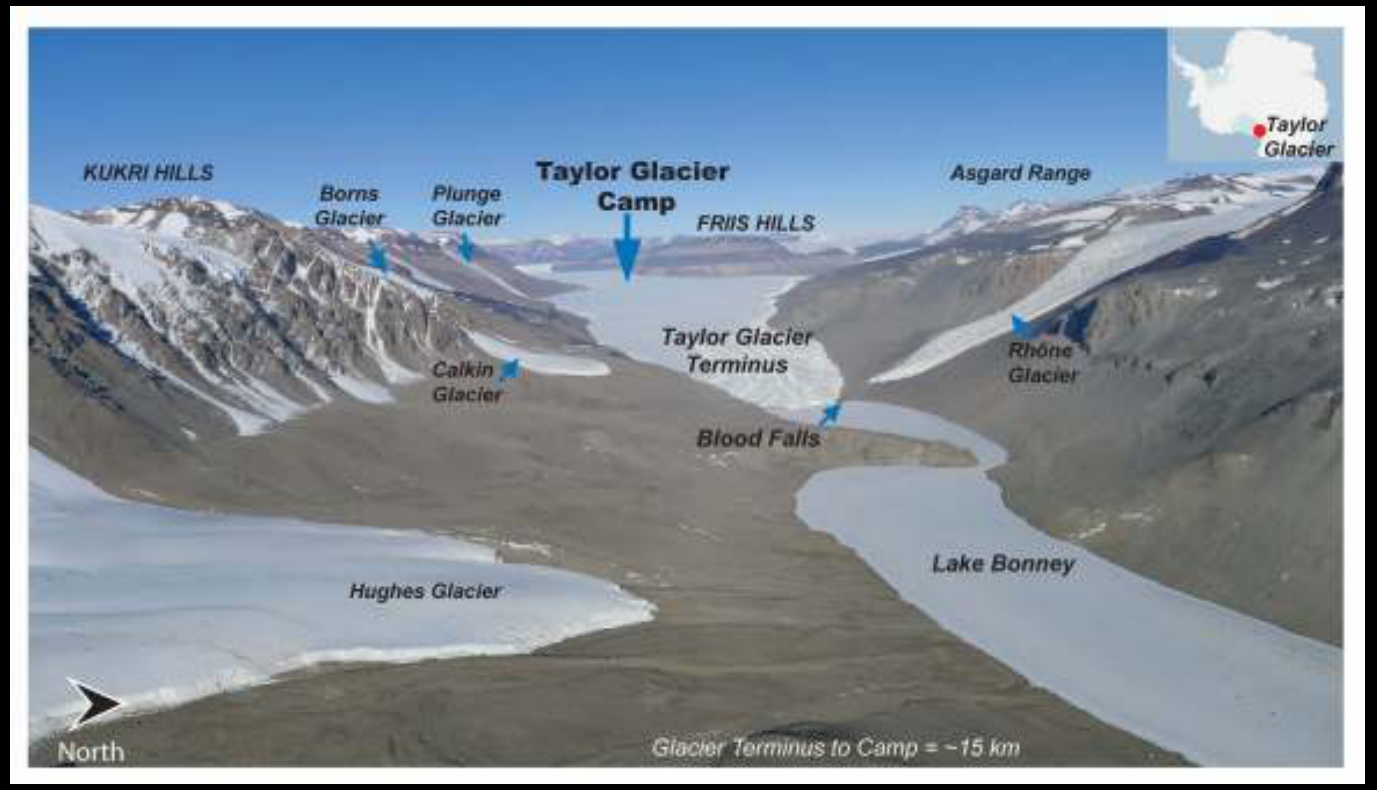
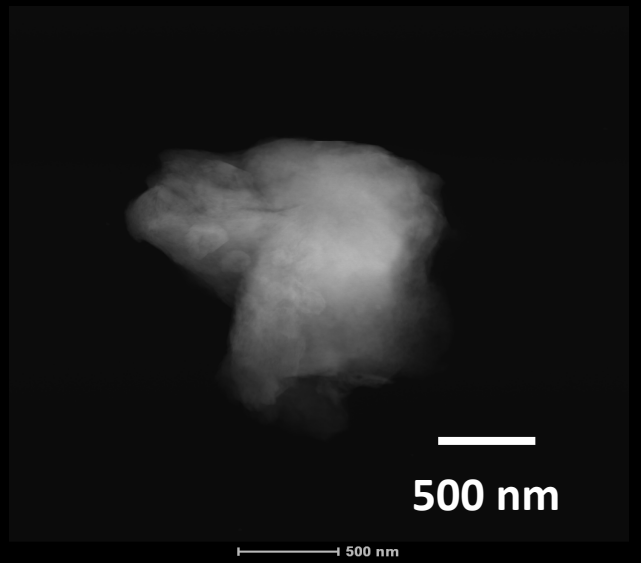
Atmospheric Mineral Nanoparticles in Taylor Glacier during the last Climatic Cycle

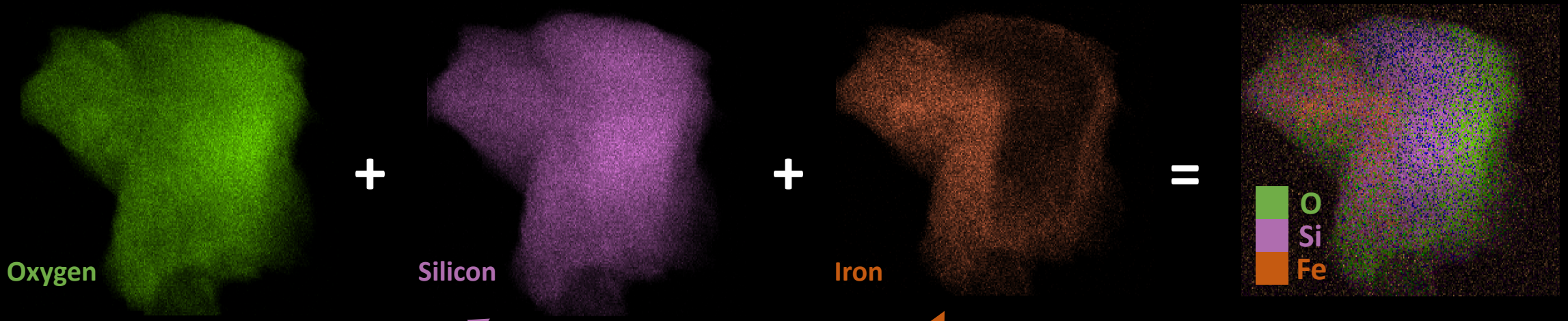


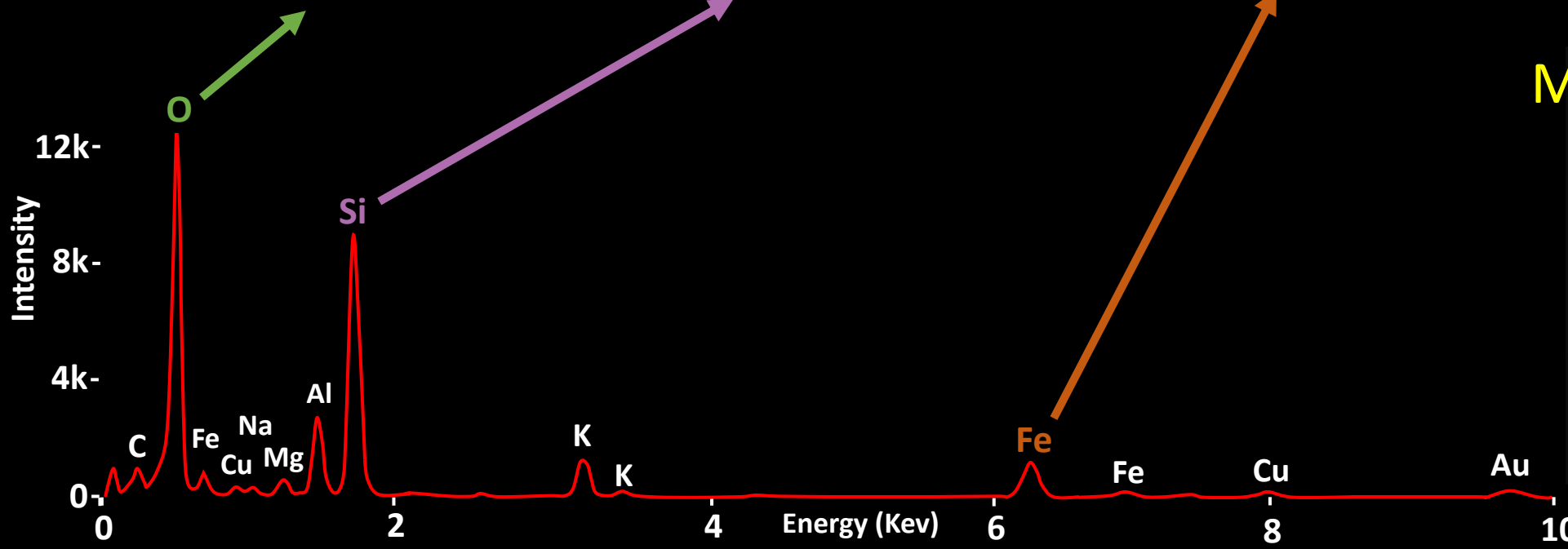


GOAL: mineralogy of aeolian particles

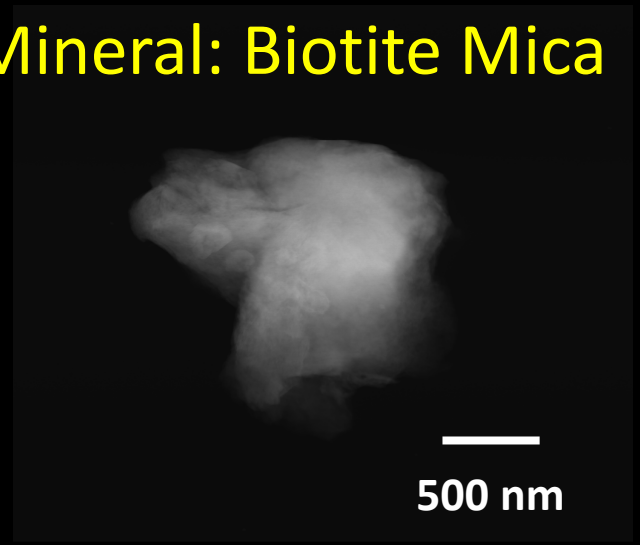
Ultimate GOALS: sources, refractive index ⟶ radiative forcing

1) Analysis of one LGP particle by microscopy (TEM-EDSX) in 30 minutes

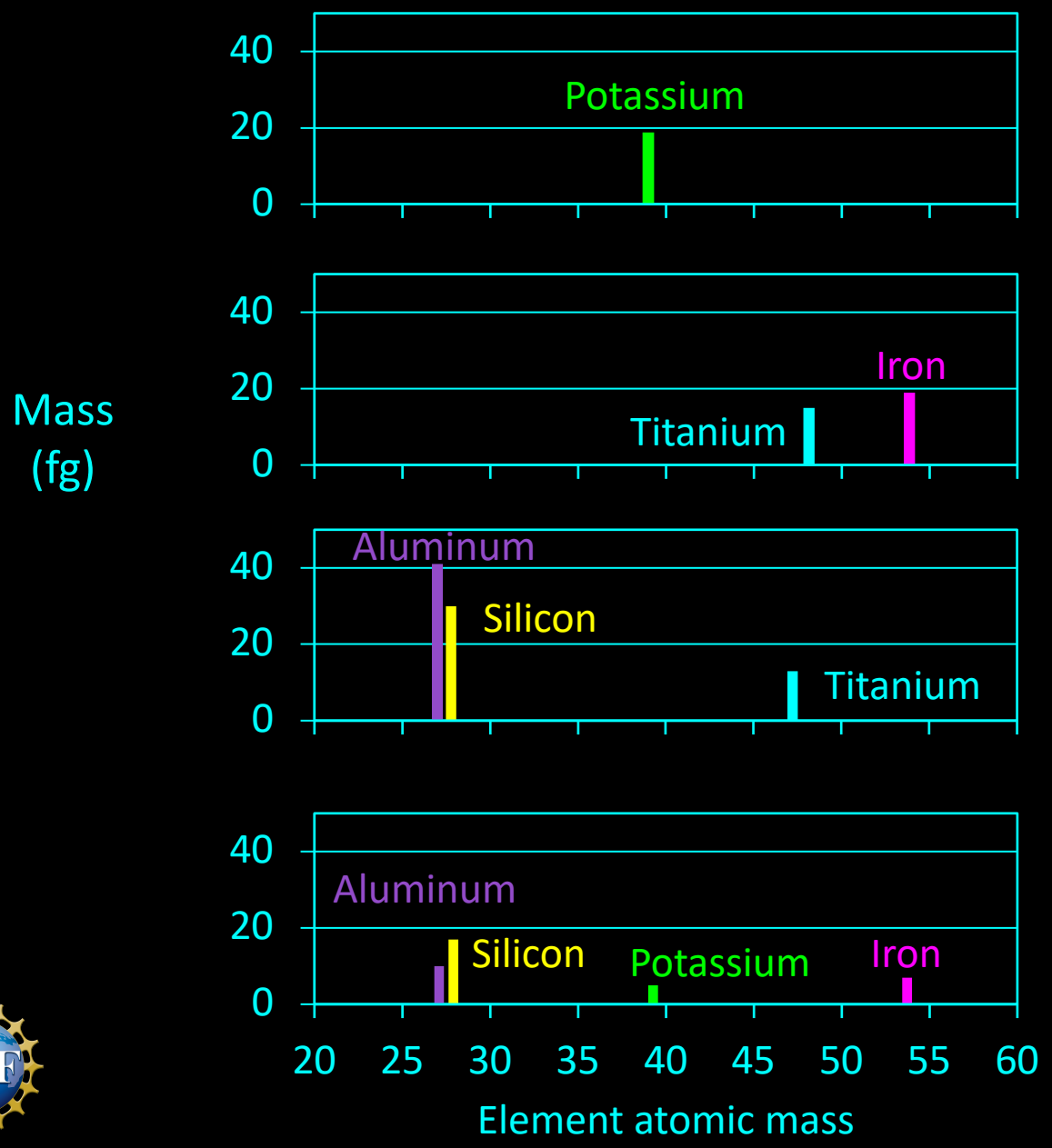




Mineral: Biotite Mica



2) Analysis of 1000nds of particles in 5 minutes by Single Particle ICP-MS



Particle 1 → Potassium oxide ($\mathbf{K_2}O$)

Particle 2 → Ilmenite ($\mathbf{FeTi}O_3$)
Pseudorutile ($\mathbf{Fe_2Ti_3}O_9$)

Particle 3 → Grossmanite ($Ca\mathbf{TiAlSi}O_6$)

Particle 10000 → Ferrimuscovite ($\mathbf{K(Al,Fe}^{3+}\mathbf{)_2(AlSi_3}O_{10})(OH)_2$)

OSU team:

PI- Paolo Gabrielli
Co-PI John Olesik
PhD Student: Maddy Lomax-Vogt
Graduate student: Cole Bradley

Many thanks to:

NSF-OPP
All field members of the original NSF programs at Taylor Glacier
IDP
NSF-ICF