Summary observations from thin sections of the R1H1
(suggest list is read from bottom to top)

S1 Depth: 0.0 - 0.06 m

- Quartz grains abundant. Note: for all samples, quartz grains appear white to yellow to dark grey in cross polarized light (XP) depending on thickness and angle of extinction.
- K-feldspar grains very rare.
- Aggregates appear to have organics included.
- Biotite and phengite grains not abundant and are too small to resolve optically.

S2 Depth: 0.3 - 0.6 m

- Liesegang bands? – micron scale- abundant in aggregates. Worms?
- Phengite appear less altered.
- Small but fewer biotite grains in variable states of alteration.
- K-feldspar grains are rare.

S3 Depth: 1.0 - 1.5 m

- Very few K-feldspars.
- Fe-oxide coatings and particles common.
- Biotite (brown booklets) show fray edges.
- Phengite appear less altered and smaller than biotite.

S4 Depth: 2.0 - 2.5 m

- Quartz is common but fewer K-feldspar grains appear than deeper samples.
- K-feldspars are altered and filled with kaolinite in dissolution pits.
- Biotite (brown booklets) show fray edges.
- Phengite appear less altered and smaller than biotite.

S5 Depth: 3.0 - 3.5 m

- Quartz and K-feldspar grains angular and common but smaller than S6 and S7.
- K-feldspar (tartan twin pattern) commonly show dissolution pits.
- Biotite (brown booklets) show fray edges.

S6: Depth: 5.0 - 6.1 m

- Same comments as S7 below.
- Biotite (brown booklets) shows more fray edging than S7.

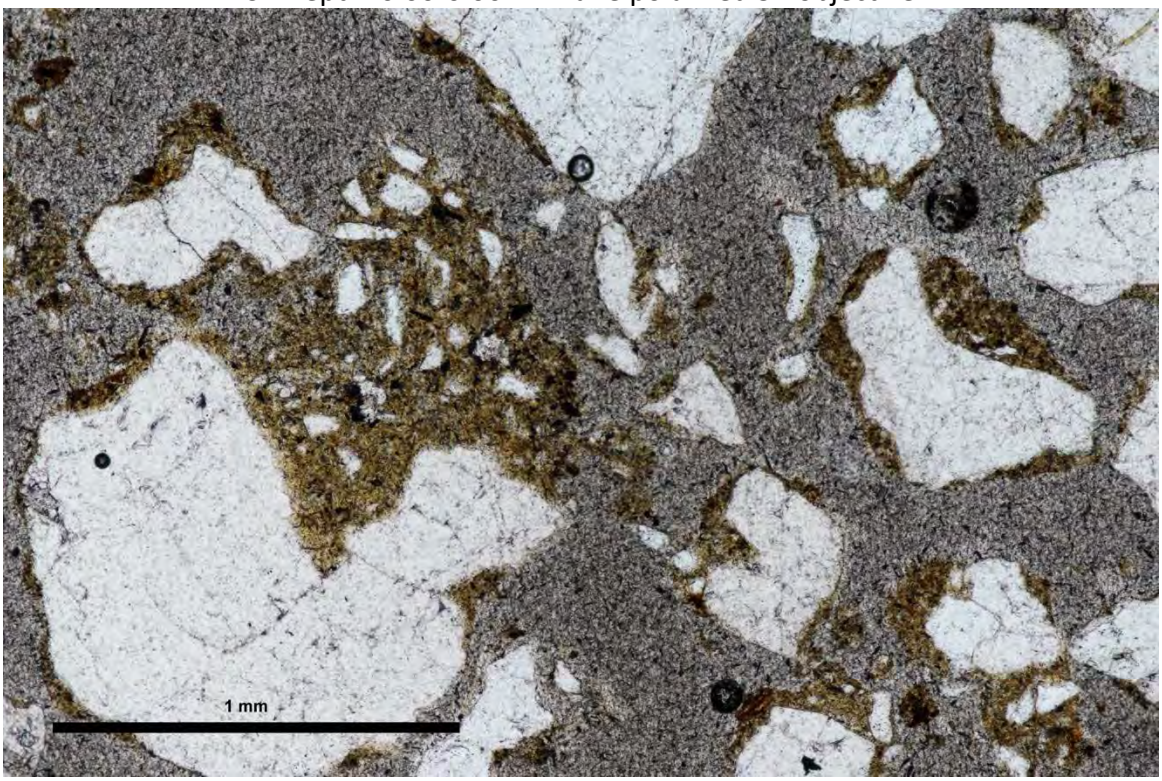
S7: Depth: 12.2 - 13.7 m

- Quartz and K-feldspar grains angular and common.
- Some K-feldspar grains (tartan twin pattern) show dissolution pits.
- Biotite (brown booklets) show some fray edges.
- Phengite (highly birefringence booklets) appear less altered and smaller than biotite.

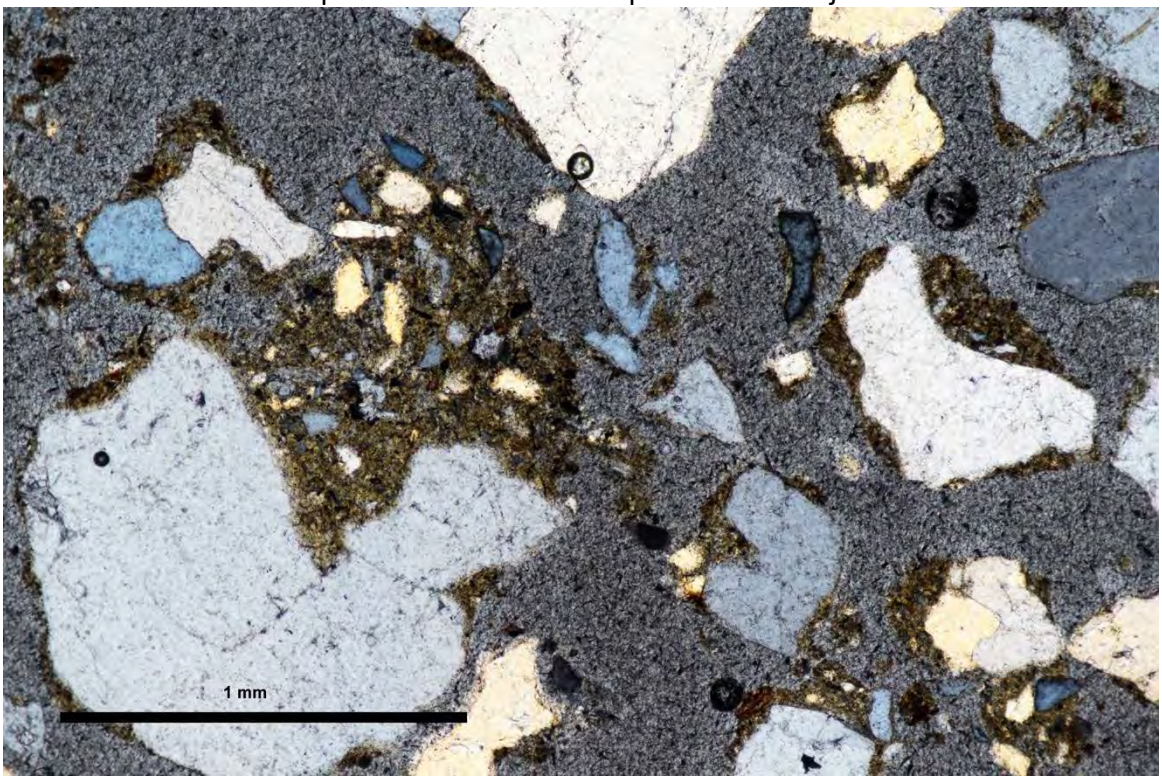
Bonus figure: X-ray diffraction pattern of 125 µm fraction showing:

- Increase of quartz toward surface
- Decrease of K-feldspar toward surface
- Degradation of biotite evidenced by low angle shoulder on mica peak (biotite, phengite, mixed layers).
- Slight shift of kaolinite peak evidence of mixed layer micas in B and BC horizons

S1 Depth: 0.00-0.06 m Plane polarized 5X objective

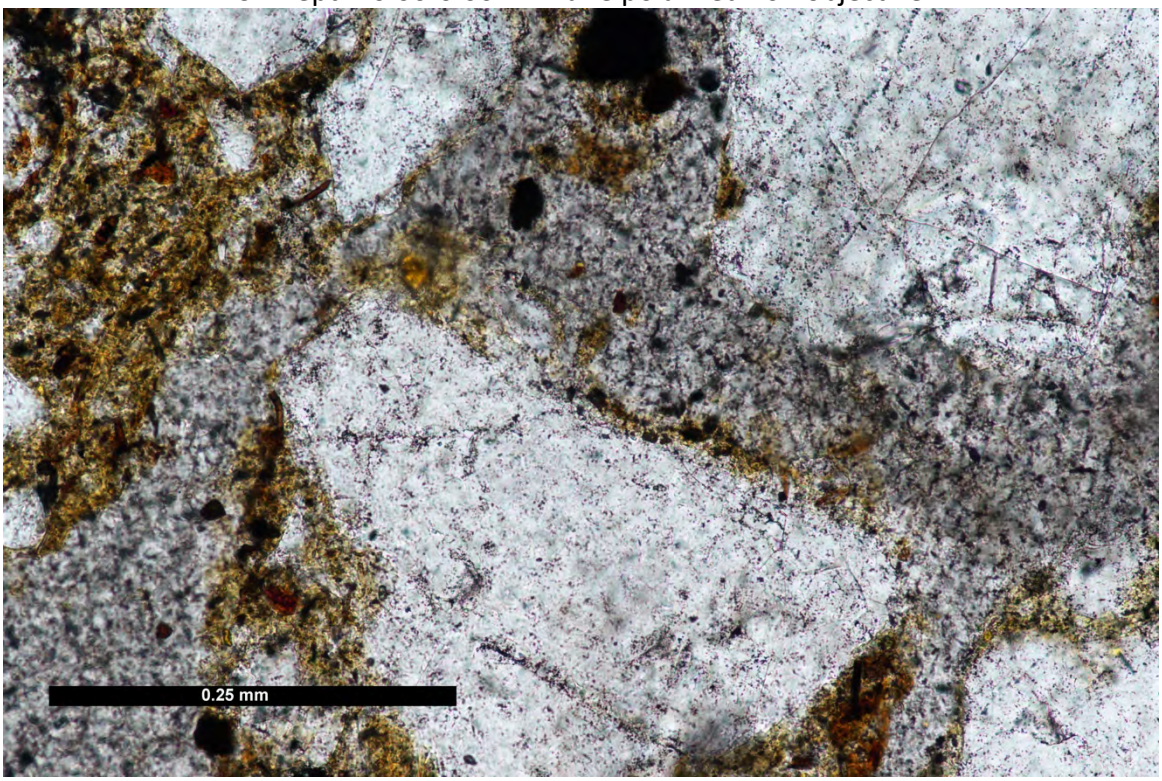


S1 Depth: 0.00-0.06 m Cross polarized 5X objective

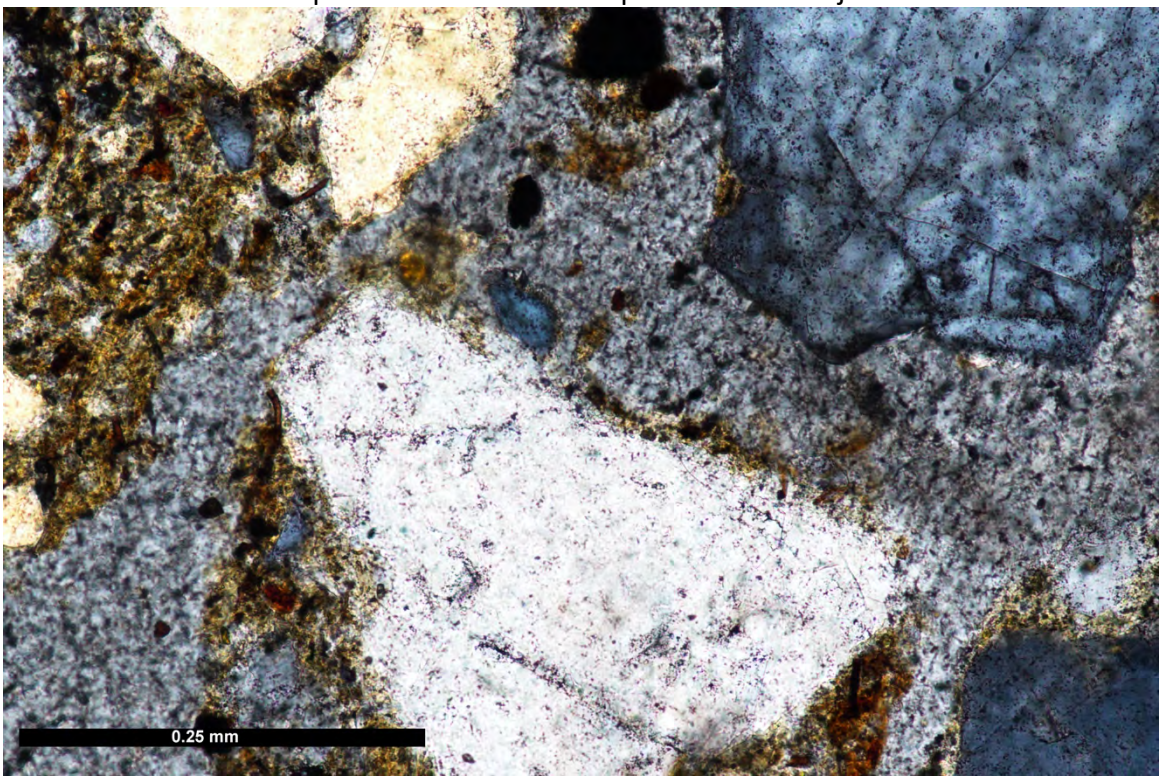


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S1 Depth: 0.00-0.06 m Plane polarized 20X objective

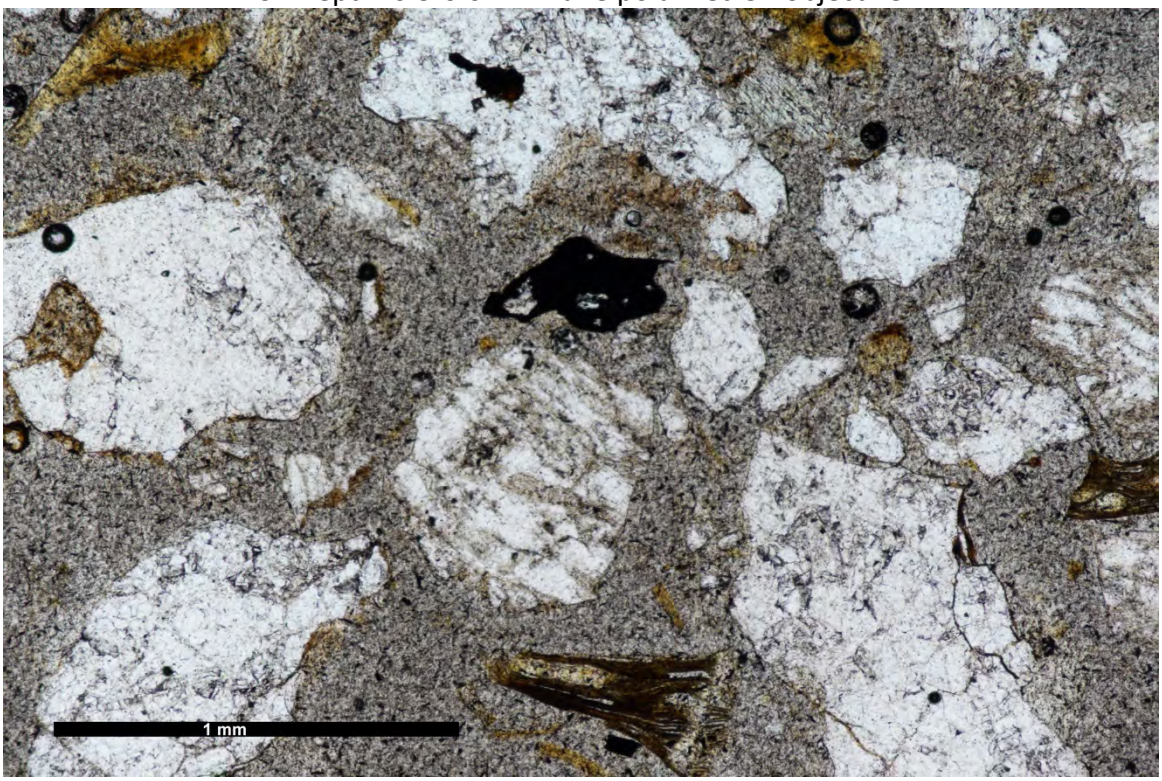


S1 Depth: 0.00-0.06 m Cross polarized 20X objective

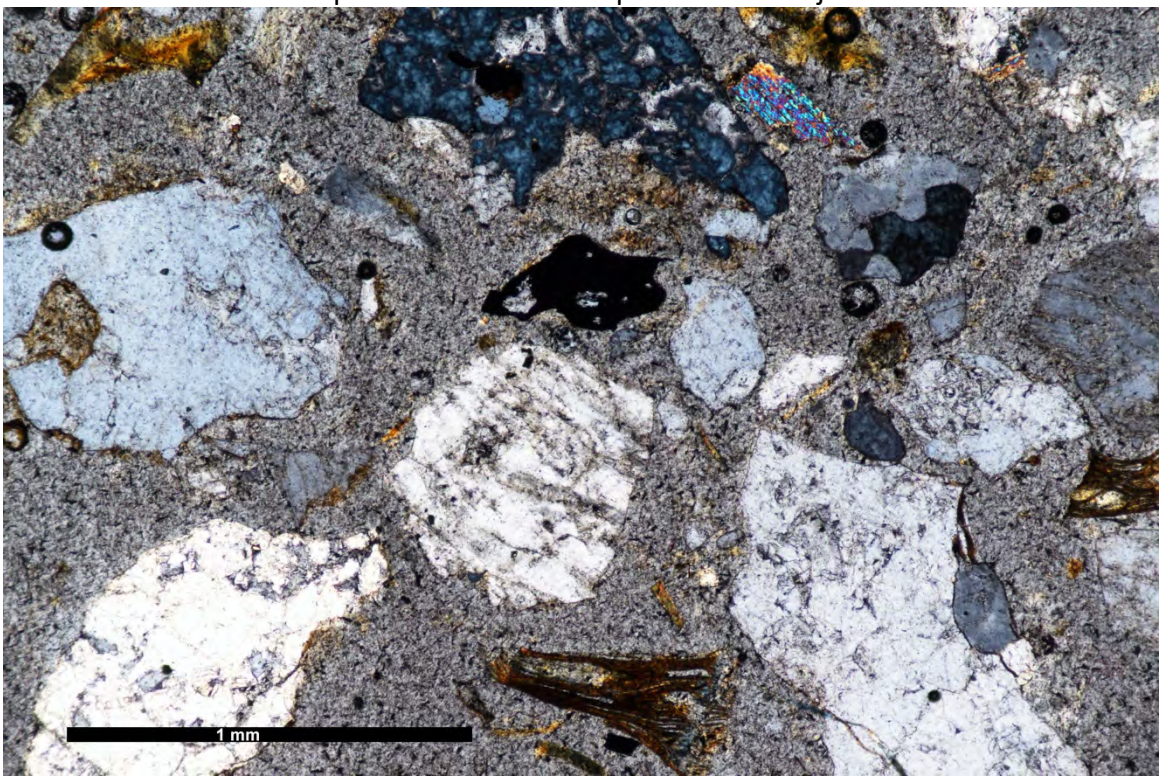


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S2 Depth: 0.3-0.6 m Plane polarized 5X objective

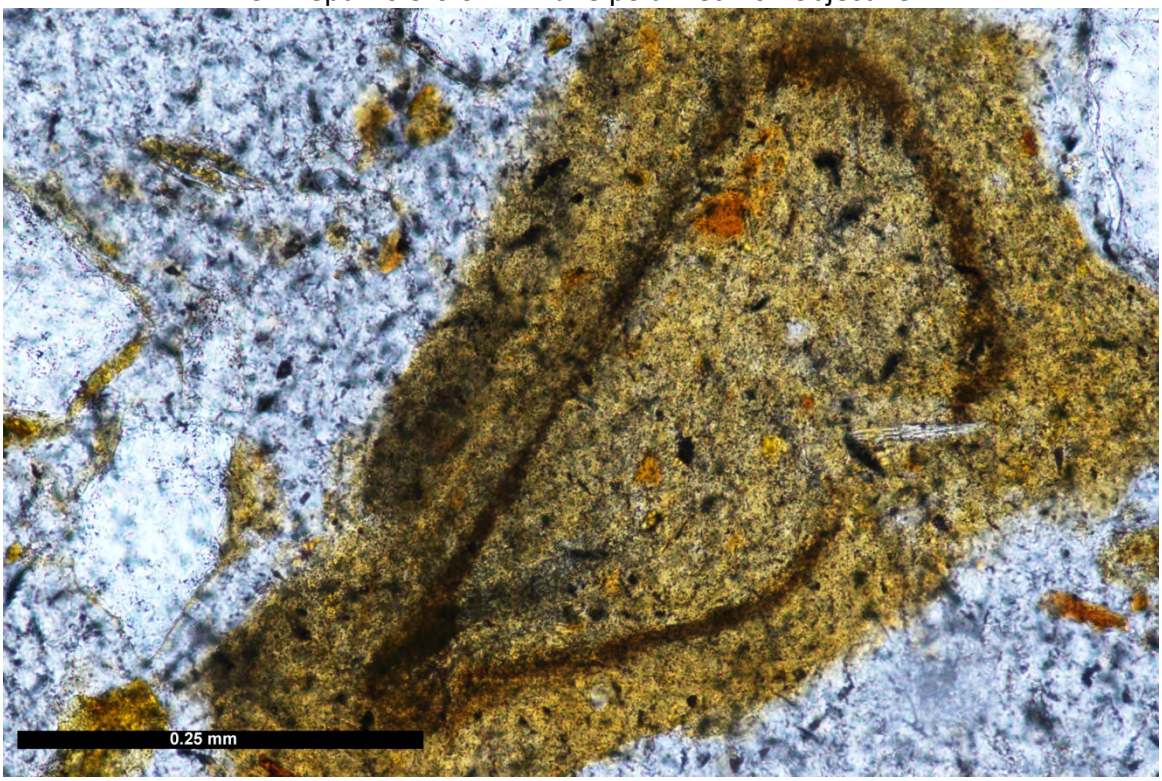


S2 Depth: 0.3-0.6 m Cross polarized 5X objective

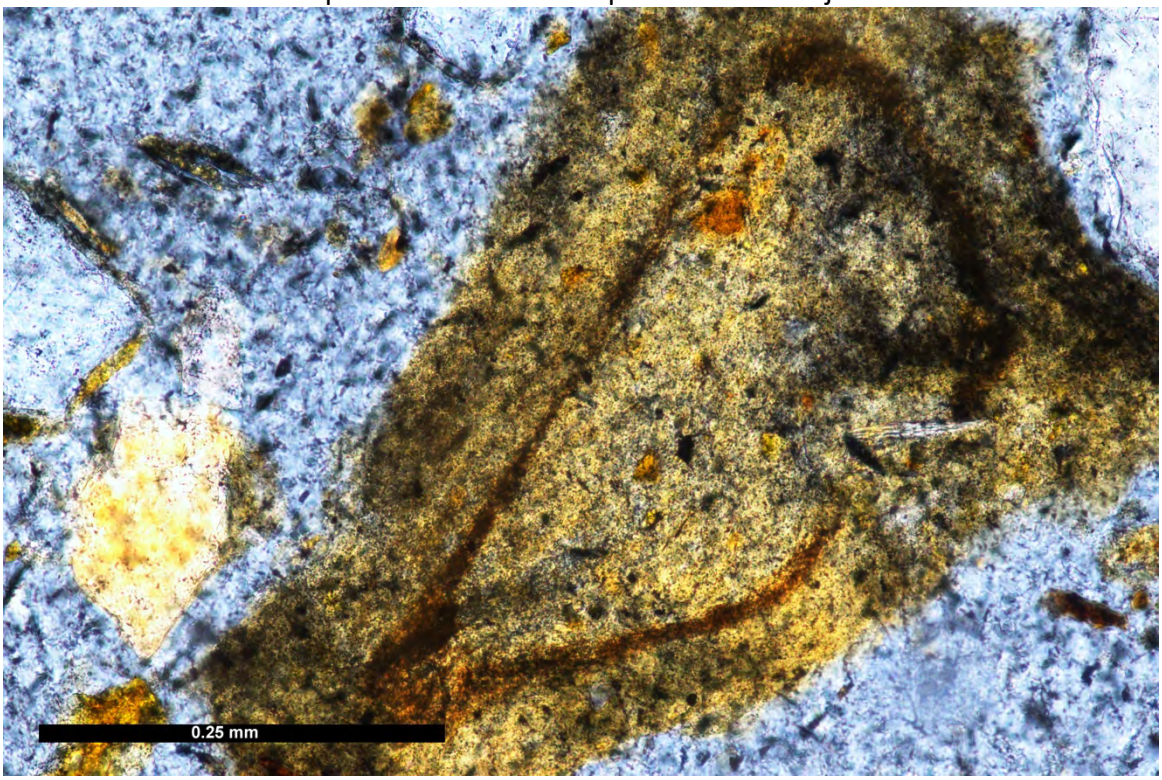


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S2 Depth: 0.3-0.6 m Plane polarized 20X objective

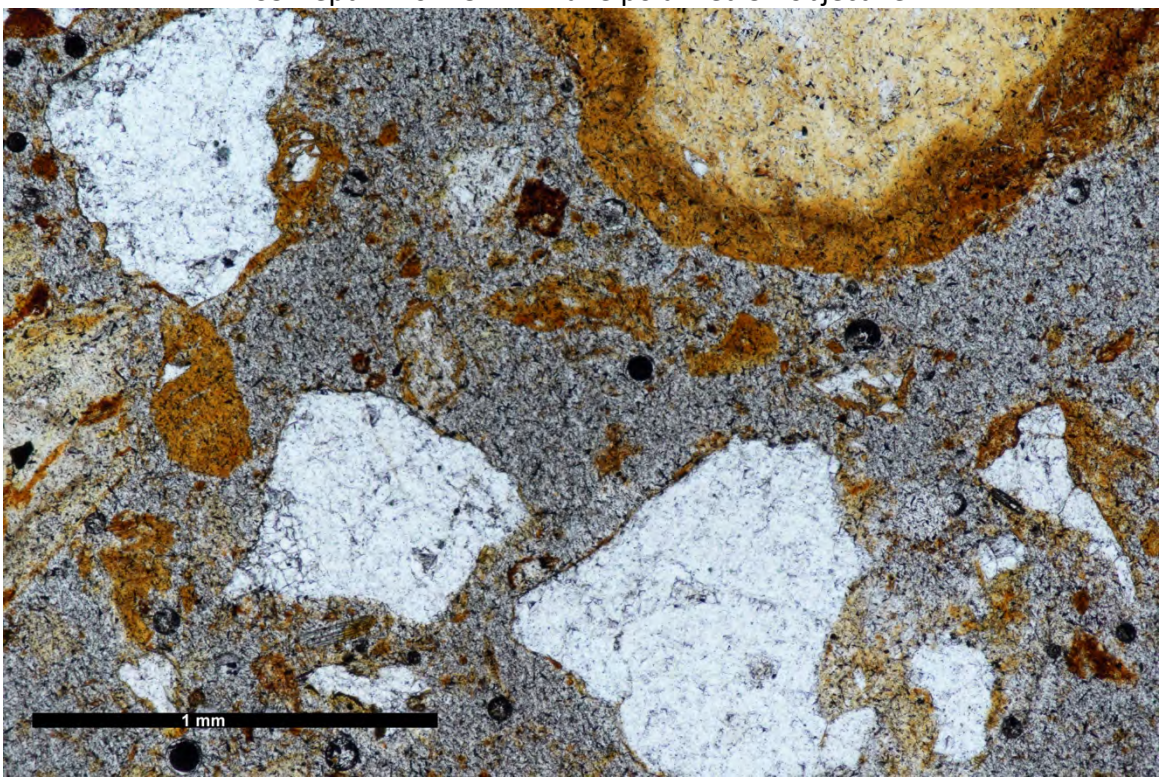


S2 Depth: 0.3-0.6 m Cross polarized 20X objective

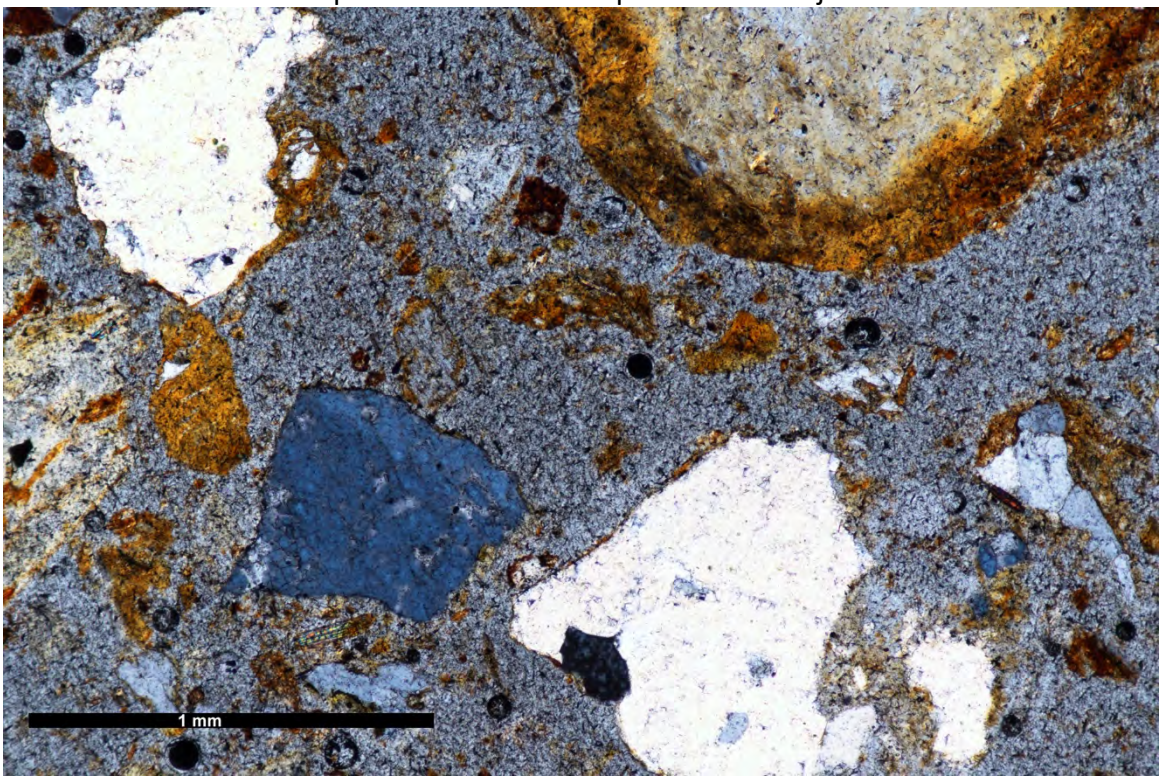


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S3 Depth: 1.0-1.5 m Plane polarized 5X objective

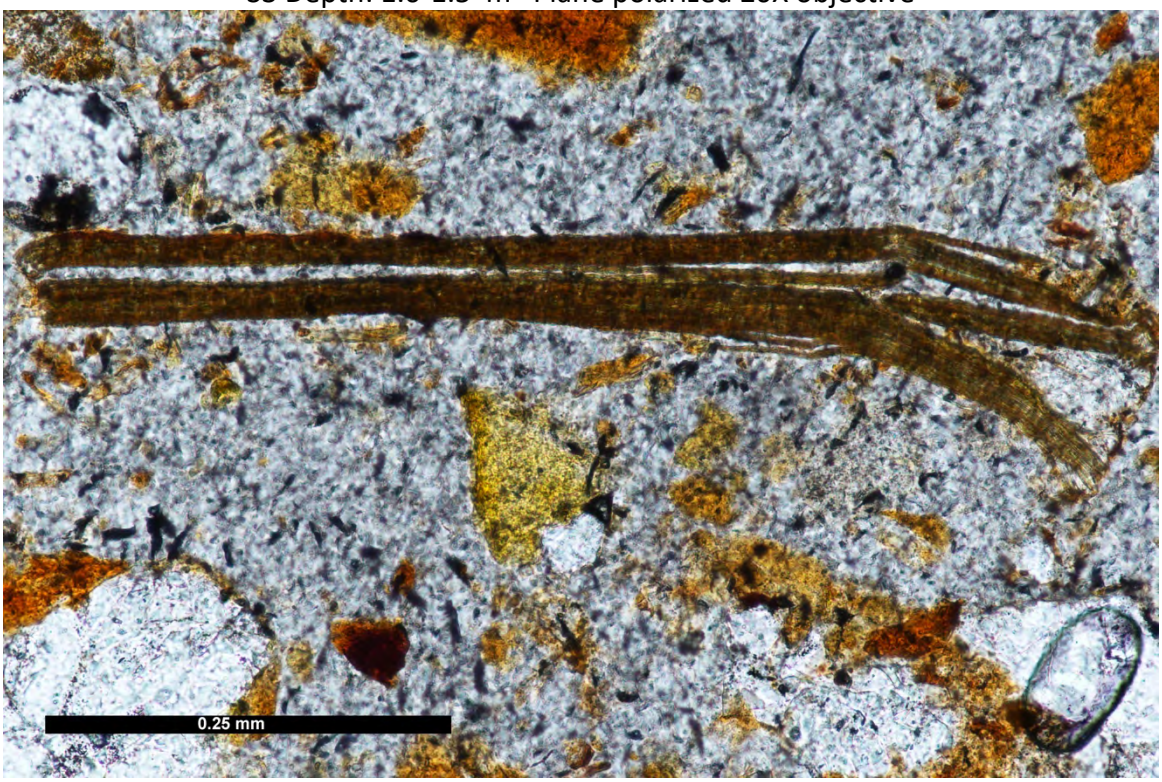


S3 Depth: 1.0-1.5 m Cross polarized 5X objective



Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

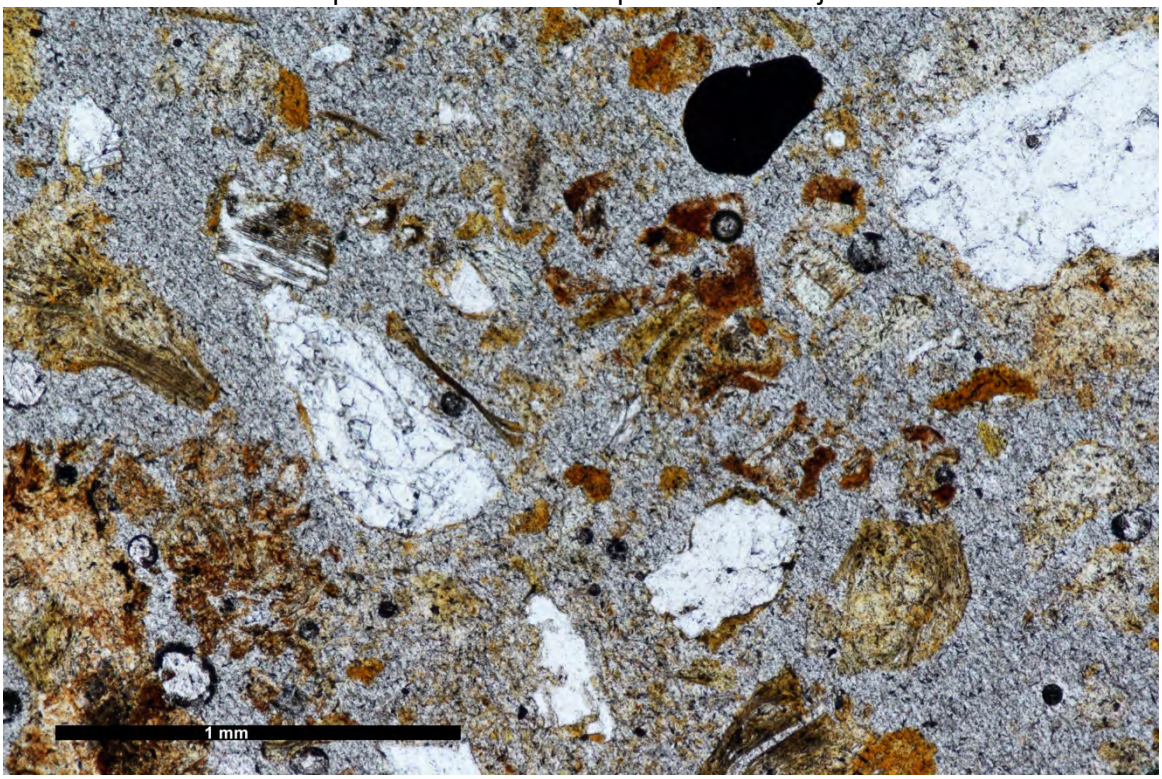
S3 Depth: 1.0-1.5 m Plane polarized 20X objective



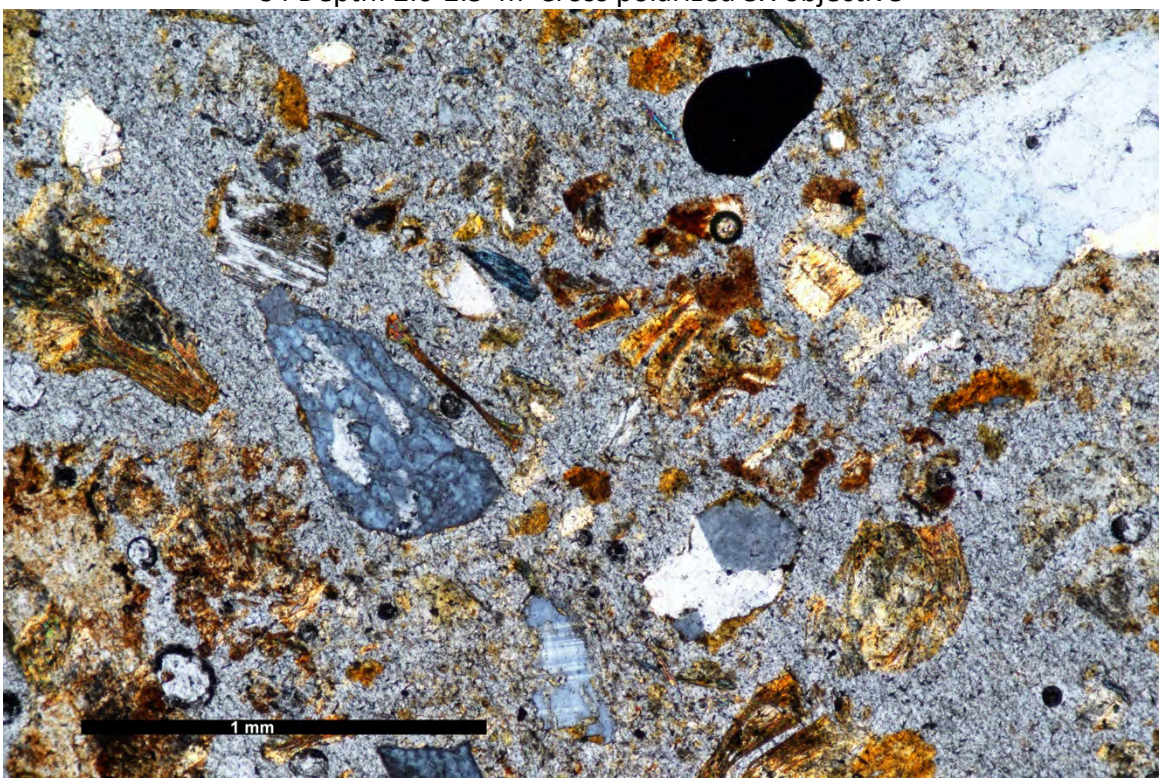
S3 Depth: 1.0-1.5 m Cross polarized 20X objective

Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S4 Depth: 2.0-2.5 m Plane polarized 5X objective

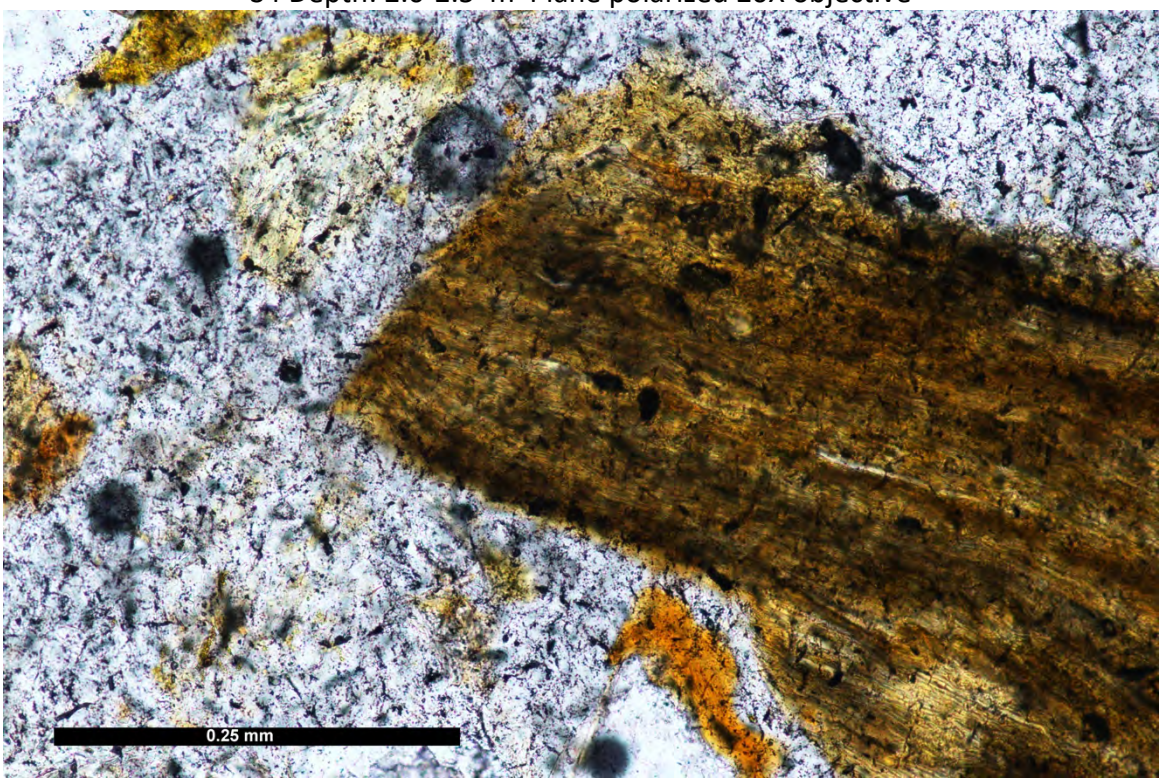


S4 Depth: 2.0-2.5 m Cross polarized 5X objective

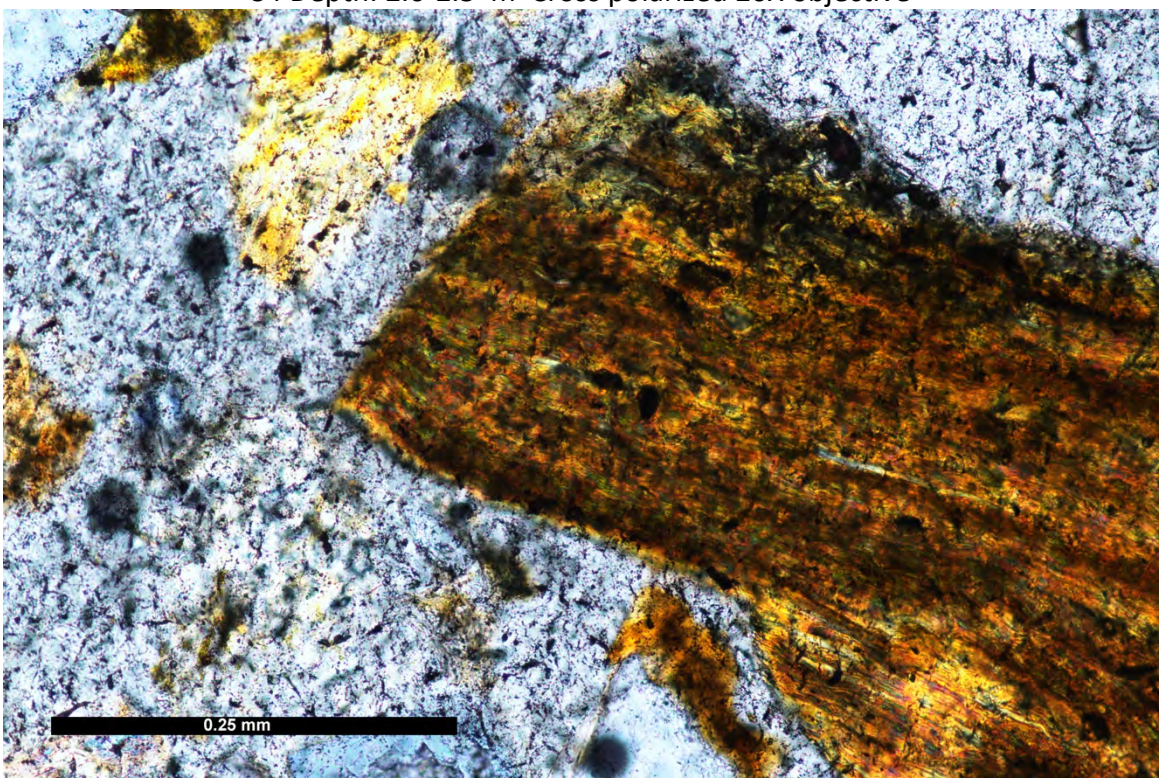


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S4 Depth: 2.0-2.5 m Plane polarized 20X objective

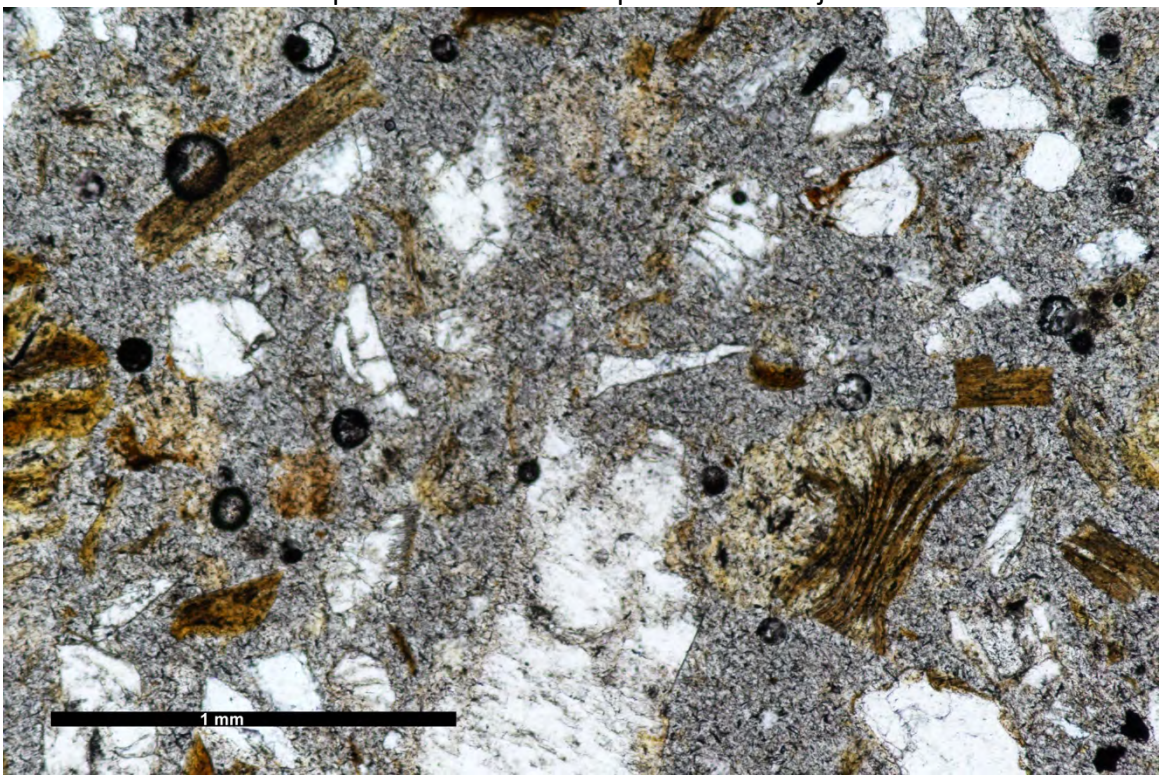


S4 Depth: 2.0-2.5 m Cross polarized 20X objective

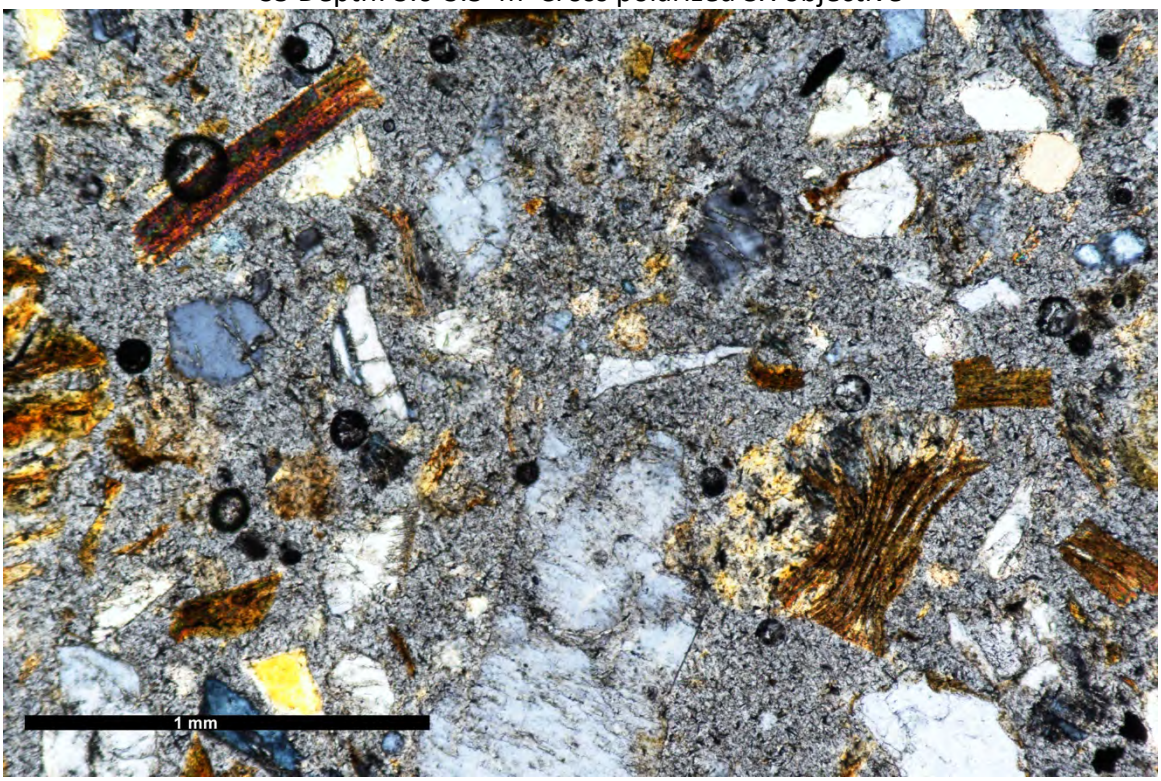


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S5 Depth: 3.0-3.5 m Plane polarized 5X objective

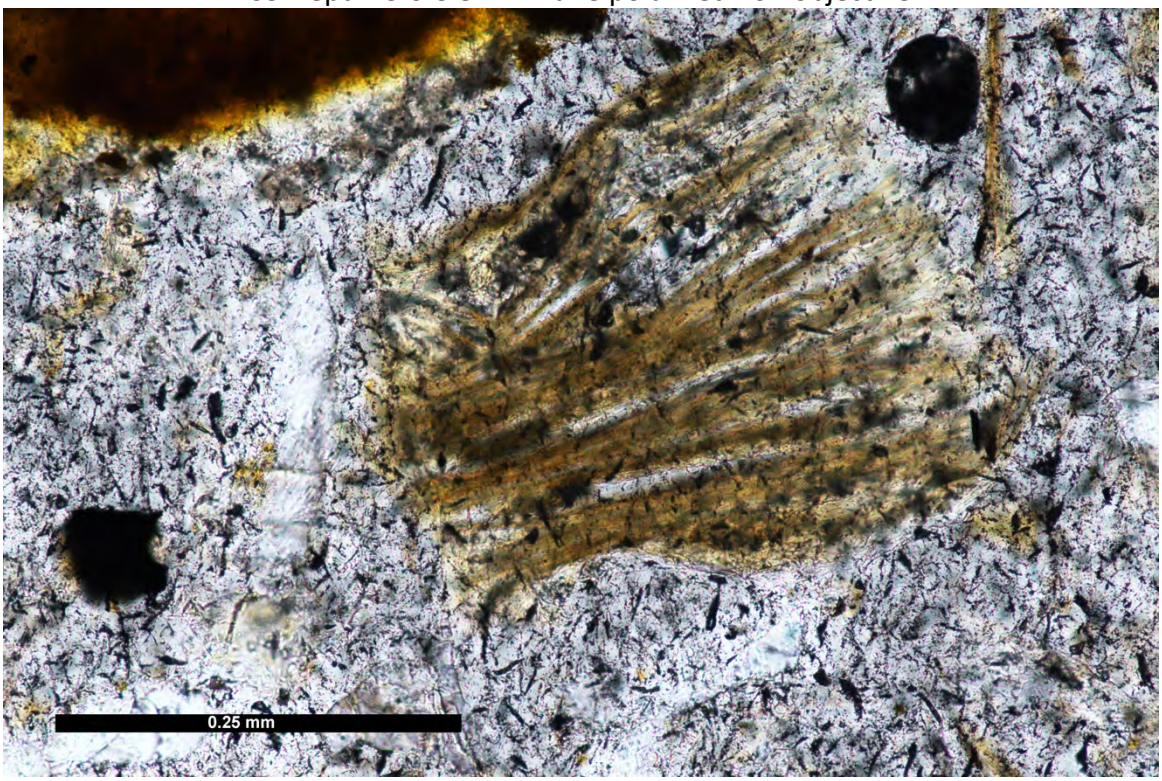


S5 Depth: 3.0-3.5 m Cross polarized 5X objective

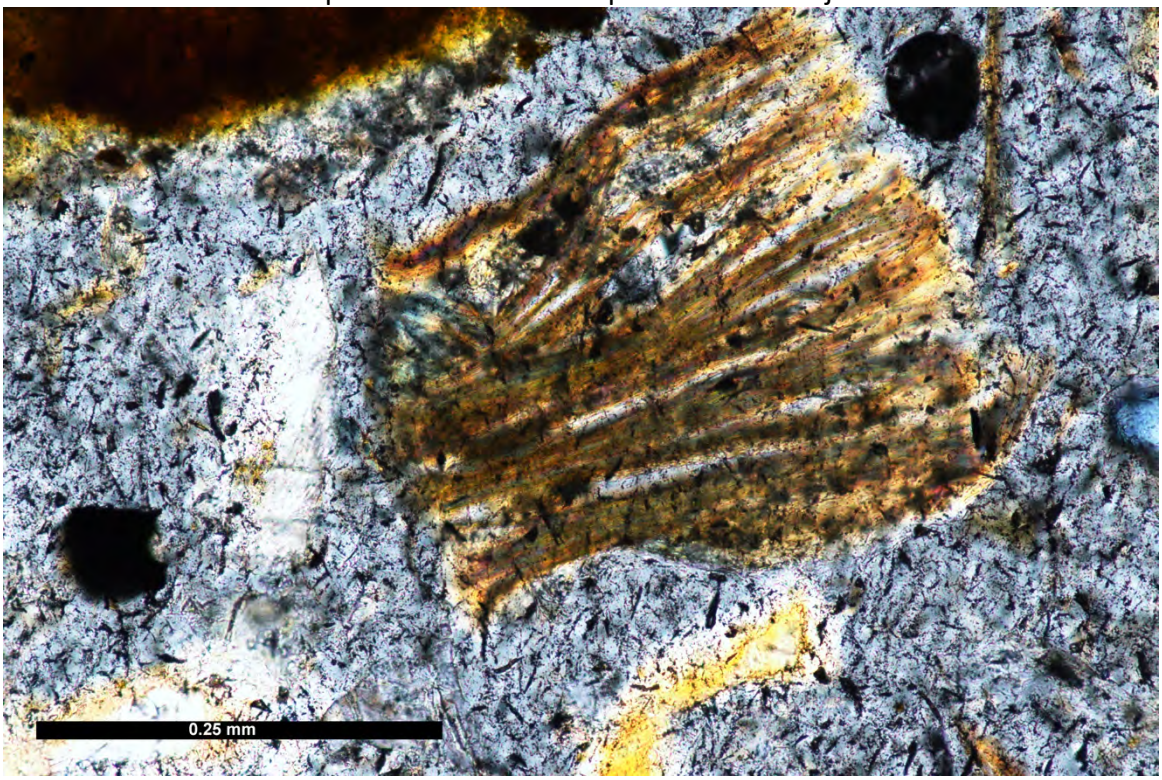


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S5 Depth: 3.0-3.5 m Plane polarized 20X objective

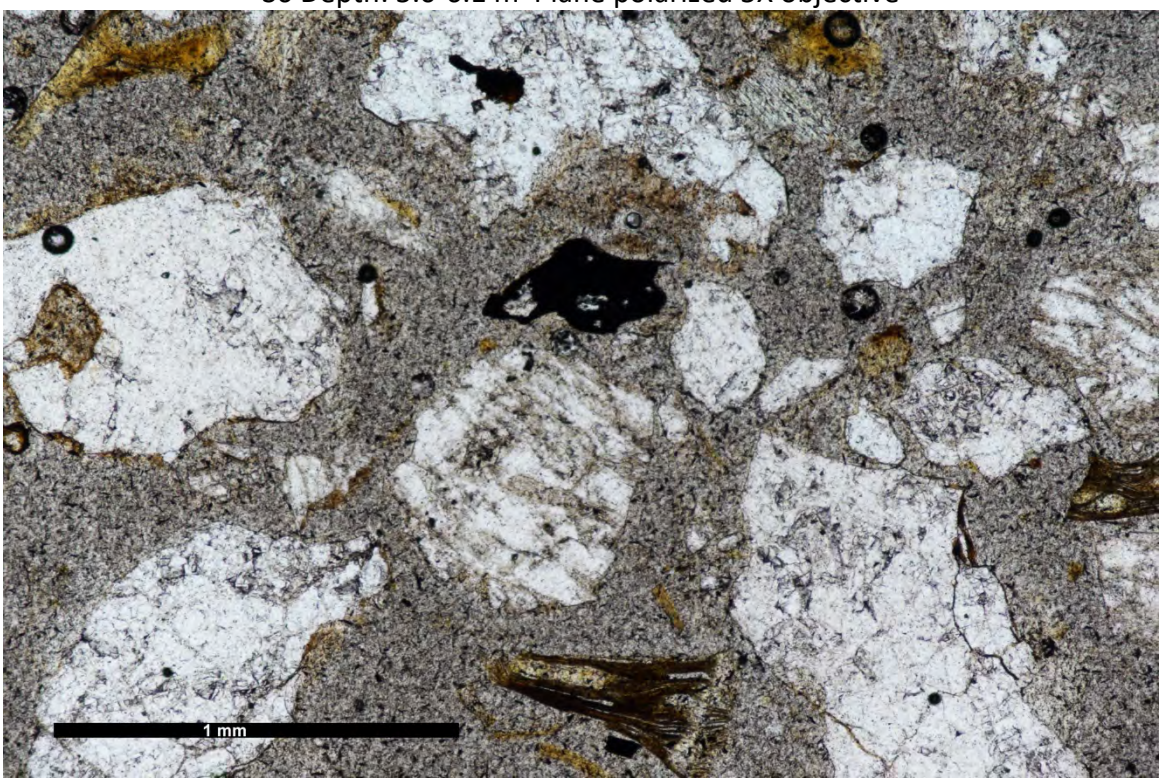


S5 Depth: 3.0-3.5 m Cross polarized 20X objective

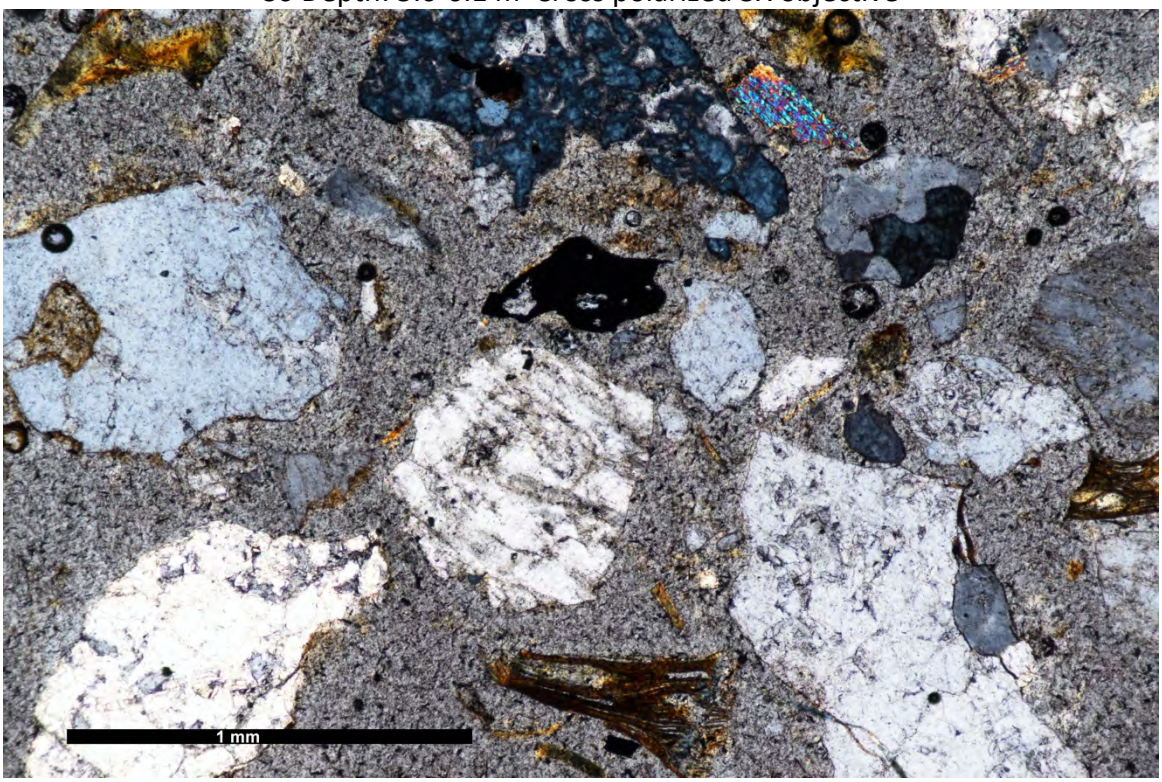


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S6 Depth: 5.0-6.1 m Plane polarized 5X objective

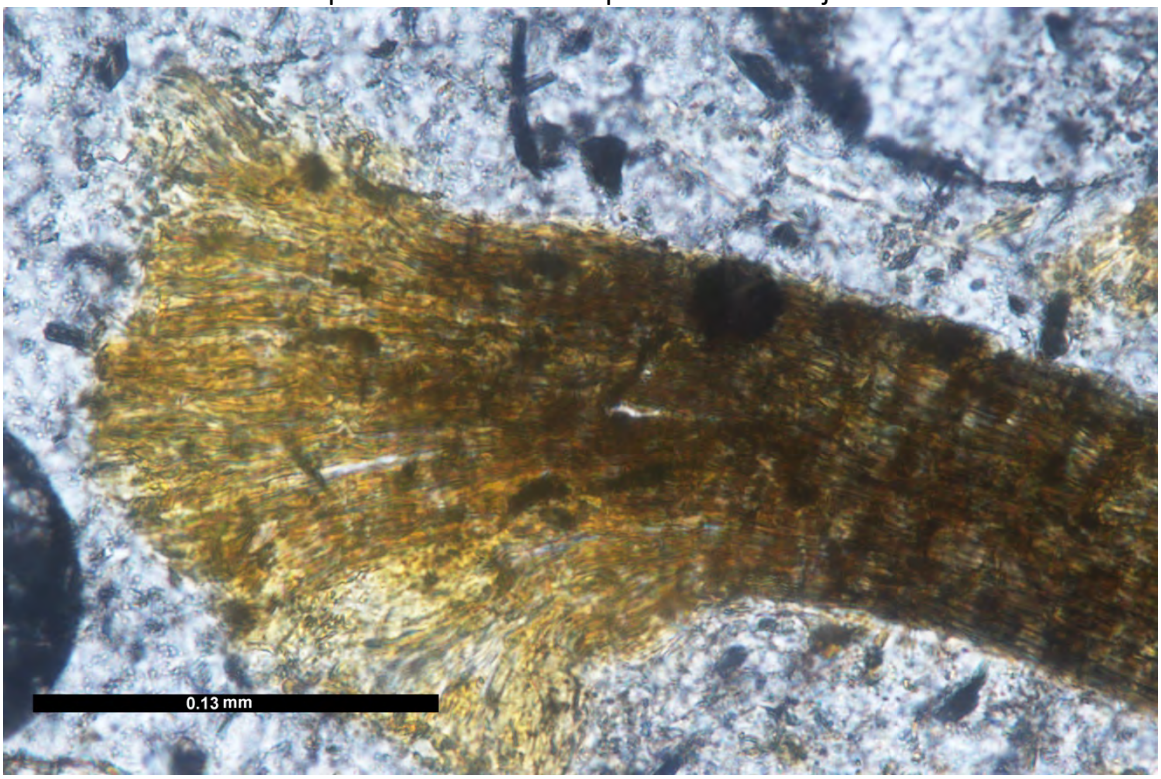


S6 Depth: 5.0-6.1 m Cross polarized 5X objective

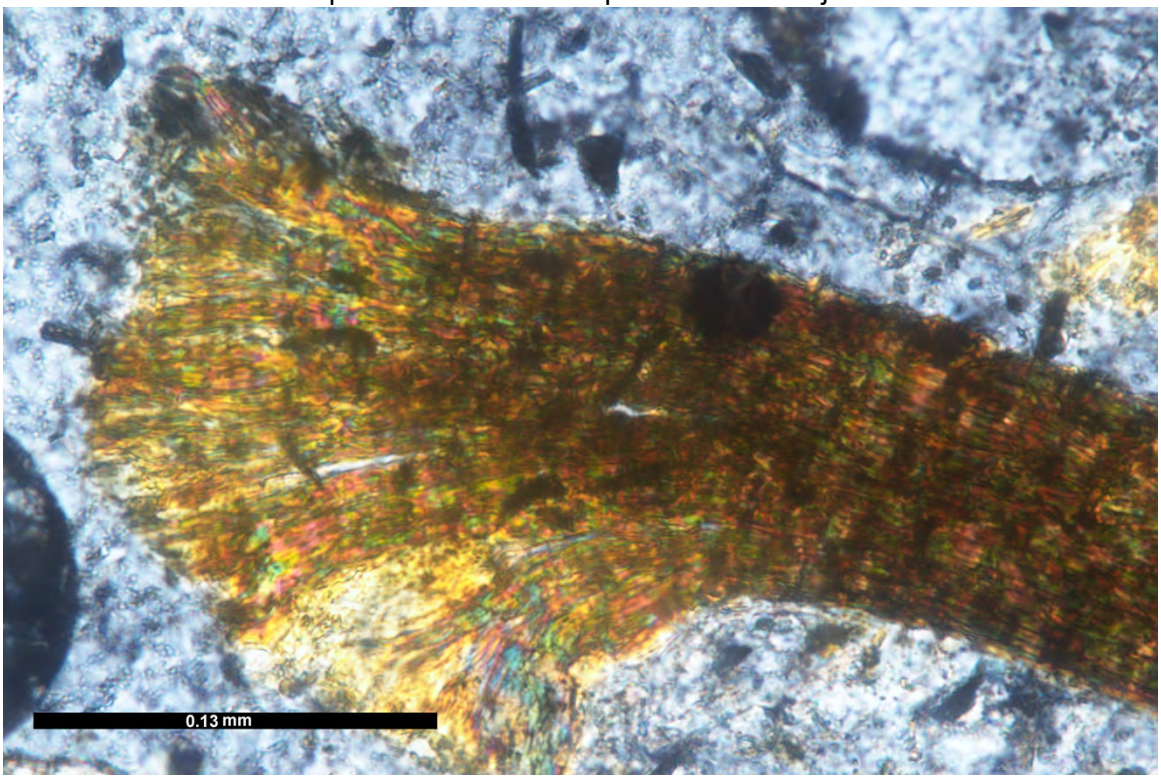


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S6 Depth: 5.0-6.1 m Plane polarized 50X objective

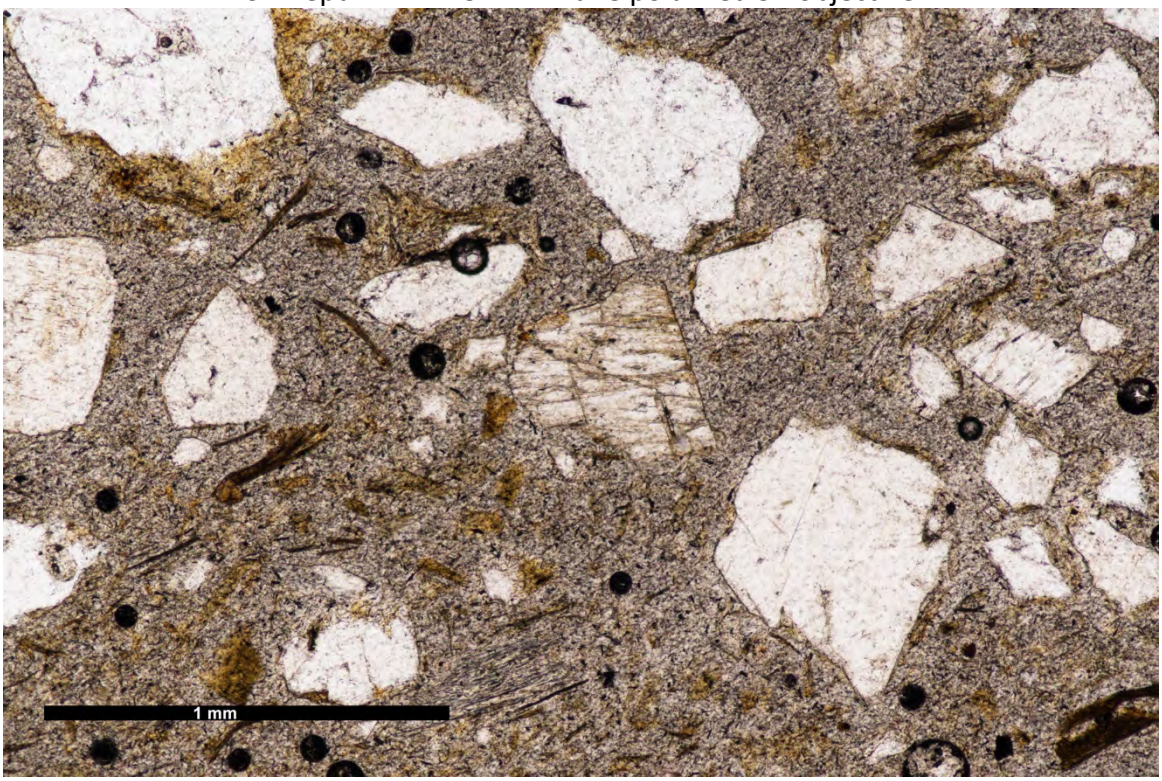


S6 Depth: 5.0-6.1 m Cross polarized 50X objective

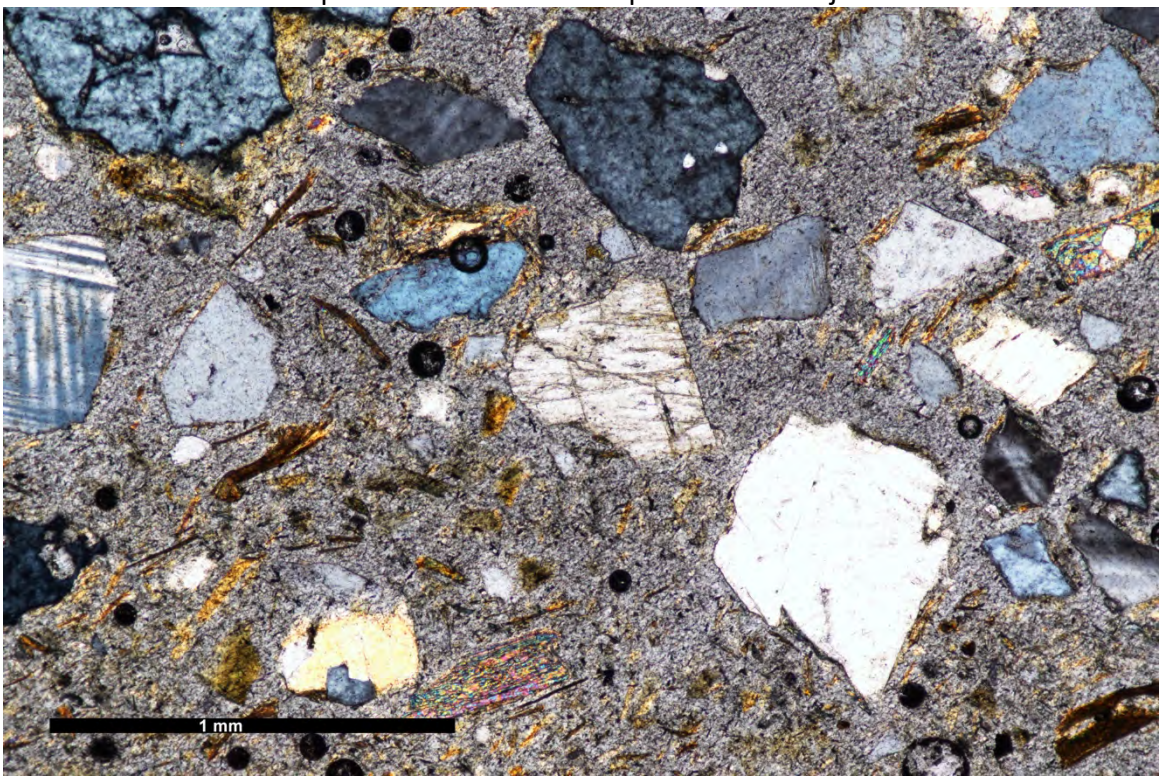


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S7 Depth: 12.2-13.7 m Plane polarized 5X objective

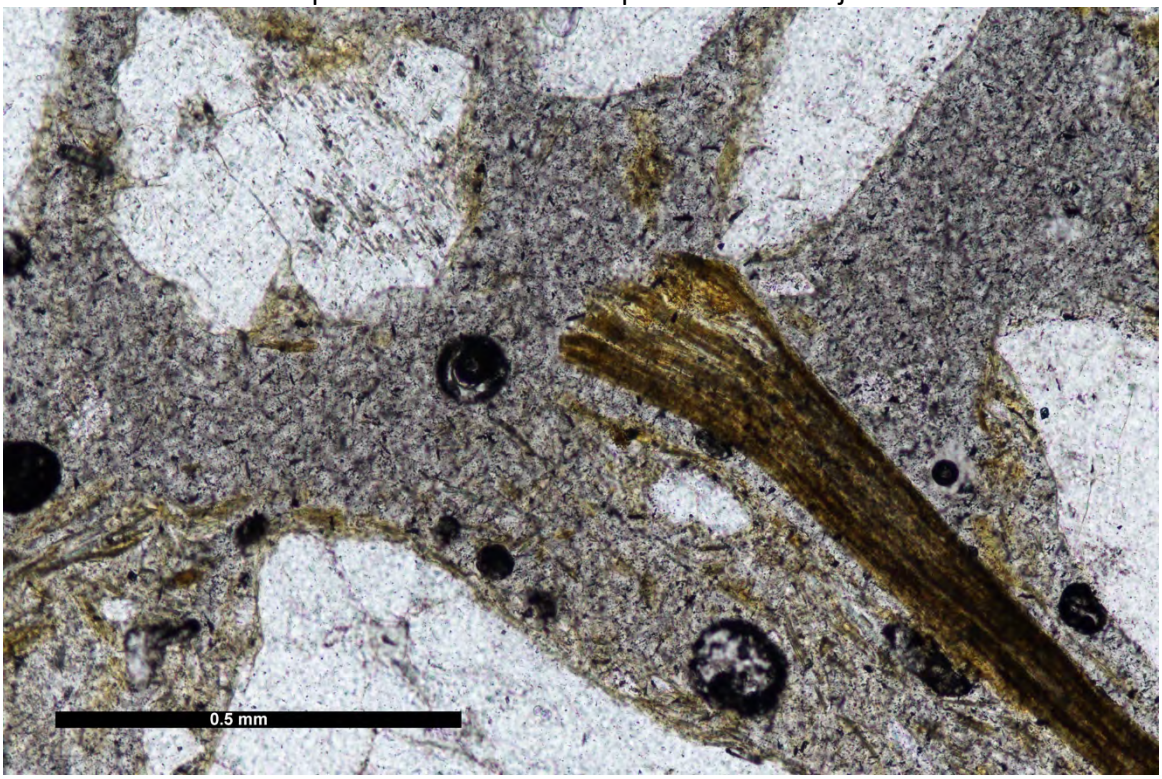


S7 Depth: 12.2-13.7 m Cross polarized 5X objective

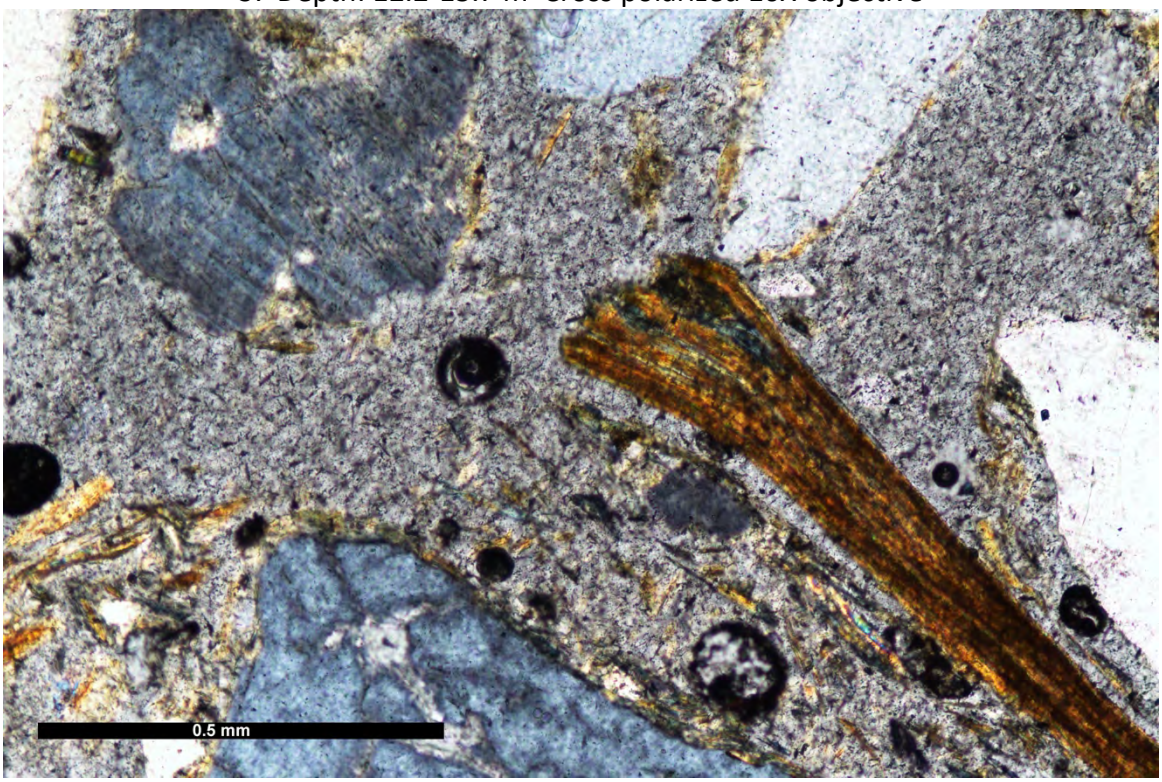


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

S7 Depth: 12.2-13.7 m Plane polarized 10X objective

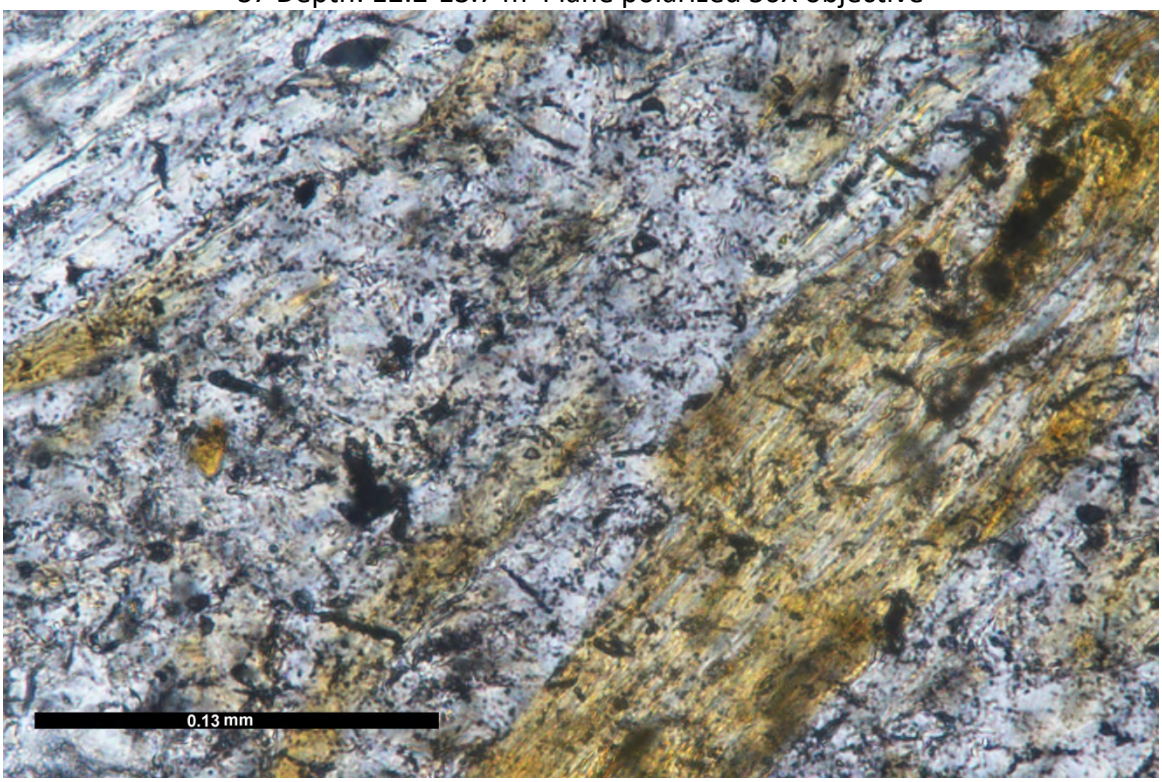


S7 Depth: 12.2-13.7 m Cross polarized 10X objective

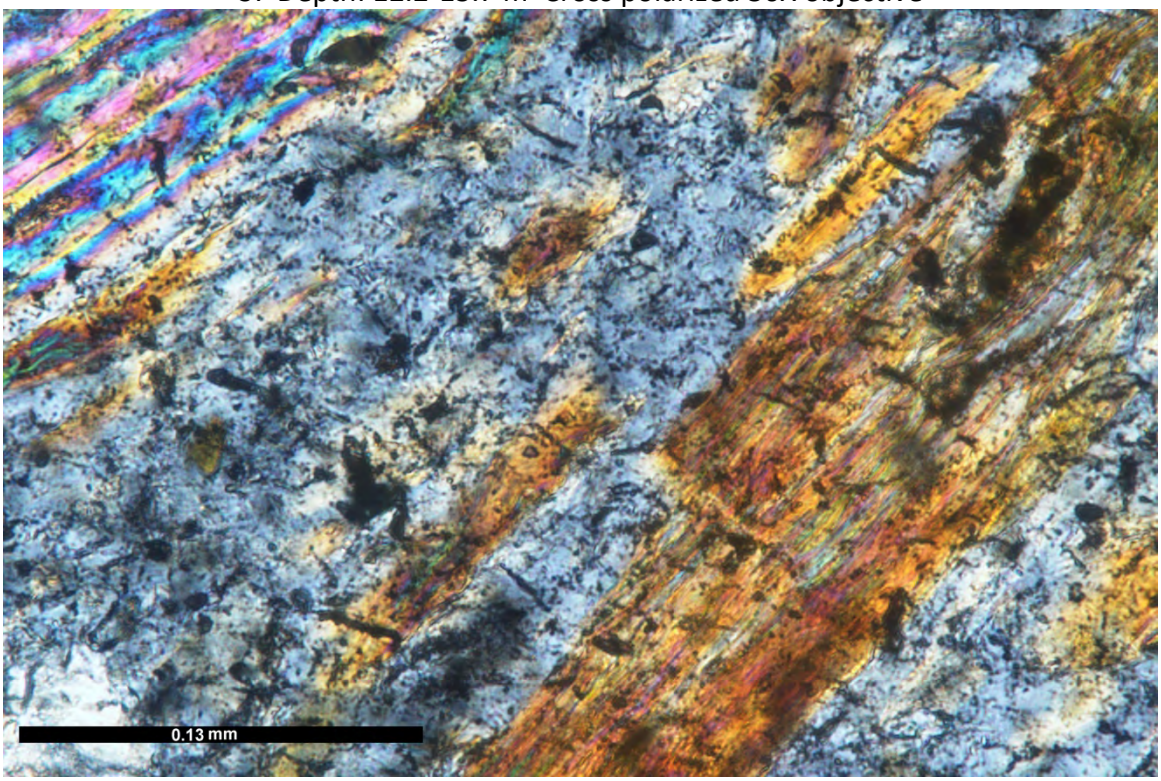


Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)

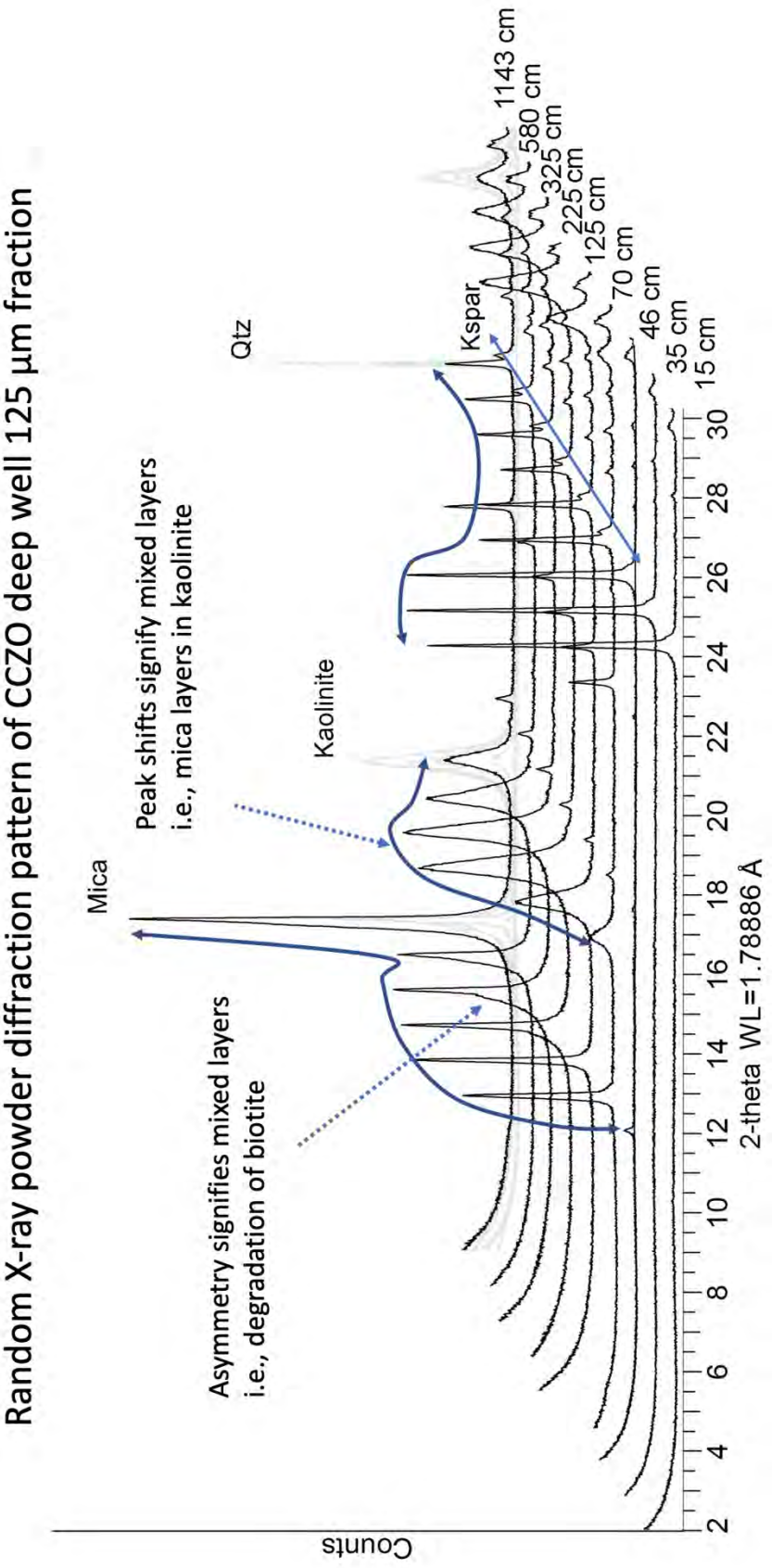
S7 Depth: 12.2-13.7 m Plane polarized 50X objective



S7 Depth: 12.2-13.7 m Cross polarized 50X objective



Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)



Calhoun Critical Zone Observatory Deep Well whole grain thin section mounts
(Photos by Schroeder, 2019)