

PETROGRAPHIC REPORT

CLIENT: Trevor Burr, AngloGoldAshanti
PROJECT/PROPERTY: CR STUDY
SAMPLE NUMBER: CD-1

BY: James R. Shannon, Ph.D.
SAMPLE TYPE: Polished Thin Section
DATE: 20-July 2017

HAND SAMPLE DESCRIPTION: Core slab showing light greenish gray, very fine to coarse grained mylonitic, dolomitic carbonate with disrupted and sheared carbonate veins. Suggestions of S-C ductile mylonitic fabrics. Minor disseminated pyrite. The sample is nonmagnetic with a pencil magnet. No reaction with dilute HCl indicates the main mylonitized carbonate is dolomite. Disrupted carbonate veins have local weak to moderate effervescence indicating a mixture of dolomite, dolomitic calcite and calcite.

POLISHED-SECTION DESCRIPTION:

MINERAL	EST %	COMMENTS
METAMORPHIC	[100]	Most of rock is recrystallized dolomite with suggestions of remnant grains
Dolomite	83	Mostly anhedral grains up to 0.5 mm and abundant 'augen' with recrystallized dolomite up to 4 mm; Locally intergrown with sericite-muscovite and chlorite
Sericite/Muscovite	12	Moderate-strong foliated 'shear' bands interweaved with dolomite and dolomite 'augen'
Quartz	2	Minor anhedral grains intergrown with dolomite and sericite-muscovite
Chlorite	0.5	Minor chlorite patches aligned with foliation
Plagioclase?		Minor local recrystallized plagioclase intergrown with dolomite
Zeolite?	2	Minor local zeolite intergrown with dolomite; Low birefringence; Wavy extinction
ALTERATION	(0.2)	
Leucoxene	0.2	Disseminated leucoxene; Alteration after Ti phase (sphene or ilmenite?)
VEINS	(12)	Relict, disrupted and locally boudinaged carbonate veins consisting of remnant dolomite (turbid brownish) cores surrounded by recrystallized calcite-dolomite mixture and late clear dolomite
Dolomite- Turbid	5	Dolomite vein cores (turbid brownish) with slightly lower birefringence
Calcite-Dolomite	5	Fine calcite-dolomite intergrowth
Dolomite- Clear	1	
Zeolite	1	
SULFIDE	[0.2]	
Pyrite	0.2	Disseminated subhedral pyrite up to 0.02 mm

TEXTURES

The sample displays well-developed mylonitic textures with suggestions of S-C ductile mylonitic fabrics. The sheared rock consists of dolomite rock lenses or 'augen' in a sheared matrix of recrystallized dolomite and sericite-muscovite. The white mica imparts a weak-moderate foliation and schistosity. There locally is minor quartz, plagioclase(?), and zeolite(?) locally intergrown with the dolomite and white mica. Minor chlorite lenses are parallel to foliation. The white mica 'shears' and dolomite augen produce an incipient to weak S-C ductile mylonitic fabric. Relict dolomite veins (up to 1 cm thick) are disrupted by shears with the local development of micro-boudinaged lenses. The thinsection has at least two disrupted dolomite veins that show complex offsets that shuffle segments of dolomite veins. The dolomite veins are pre-deformation/metamorphism. There is minor subhedral disseminated pyrite and some stretched pyrite 'augen' in the core slab, suggesting some pyrite is pre- or syn-deformation.

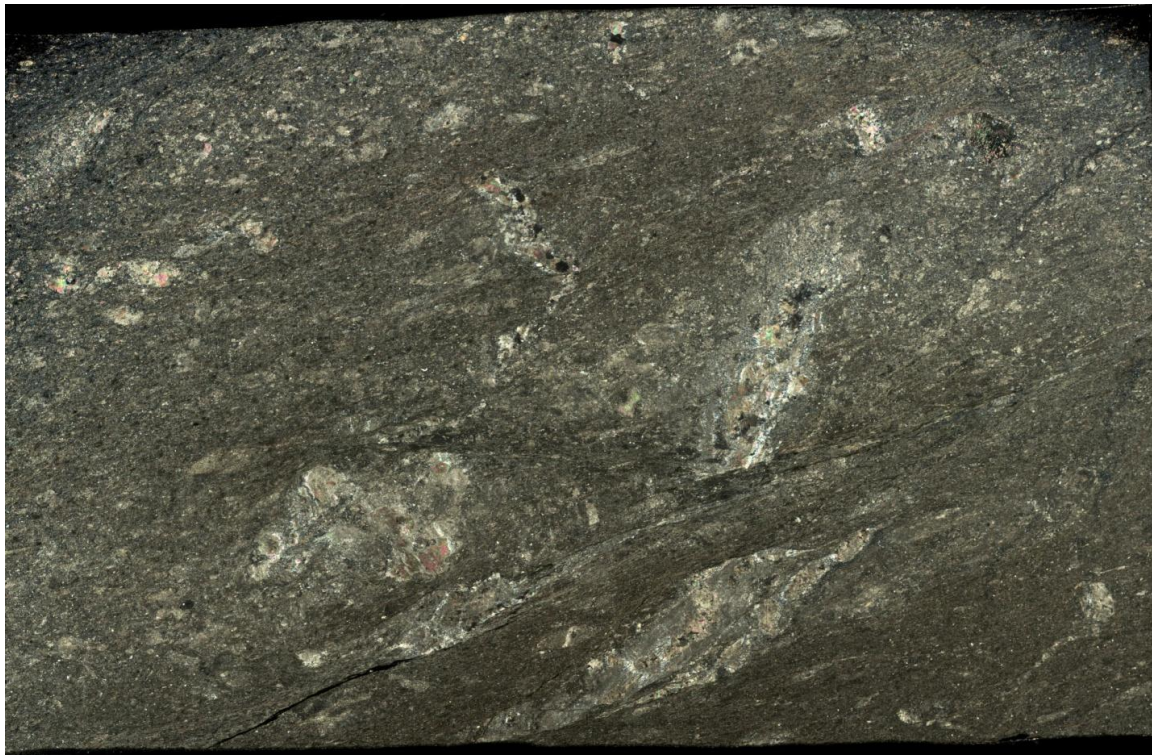
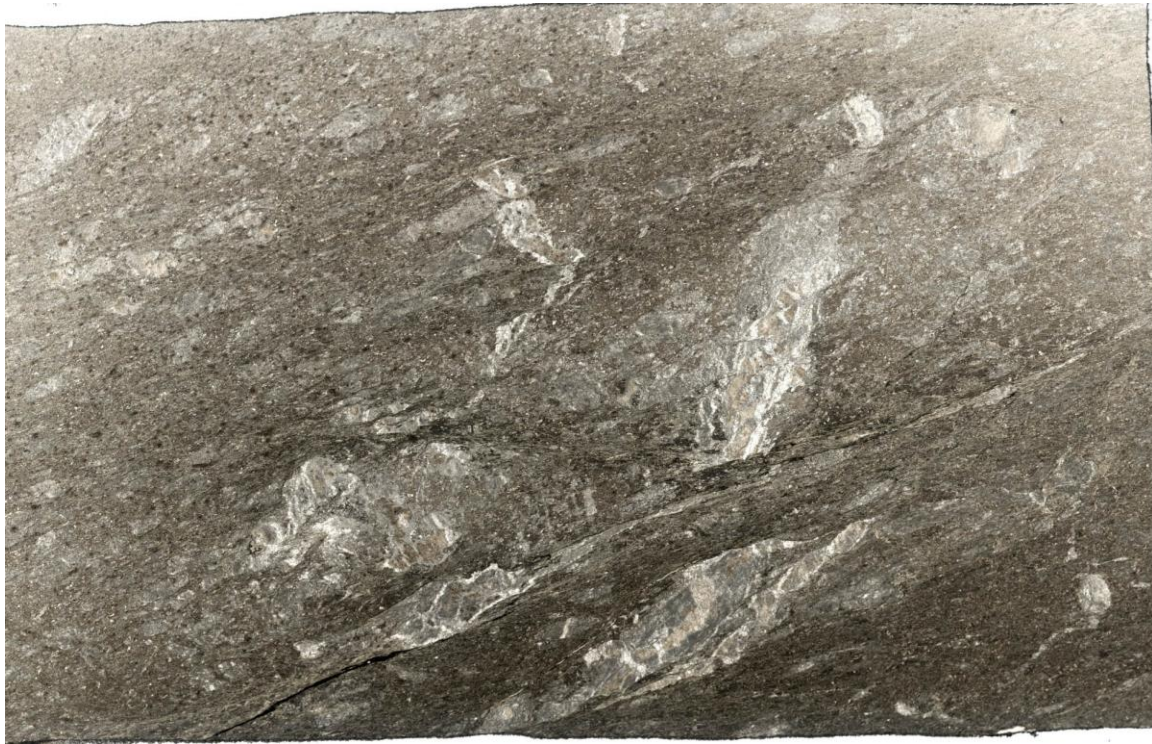
This sample is somewhat similar to sample 863677 a gneissic, mylonitic biotite schist with significant dolomite component. However, it does not have as strong of a silicate component.

METAMORPHISM

The sample has well-developed metamorphic deformation fabrics. The assemblage dolomite-sericite/muscovite-chlorite suggests a medium grade of metamorphism. The presence of white mica suggests metamorphic equivalent of upper amphibolite facies. The dolomite component of the rock appears to resist plastic deformation and recrystallization with formation of abundant dolomite 'augen'

ROCK NAME: Sericite-Muscovite Mylonitic Schist

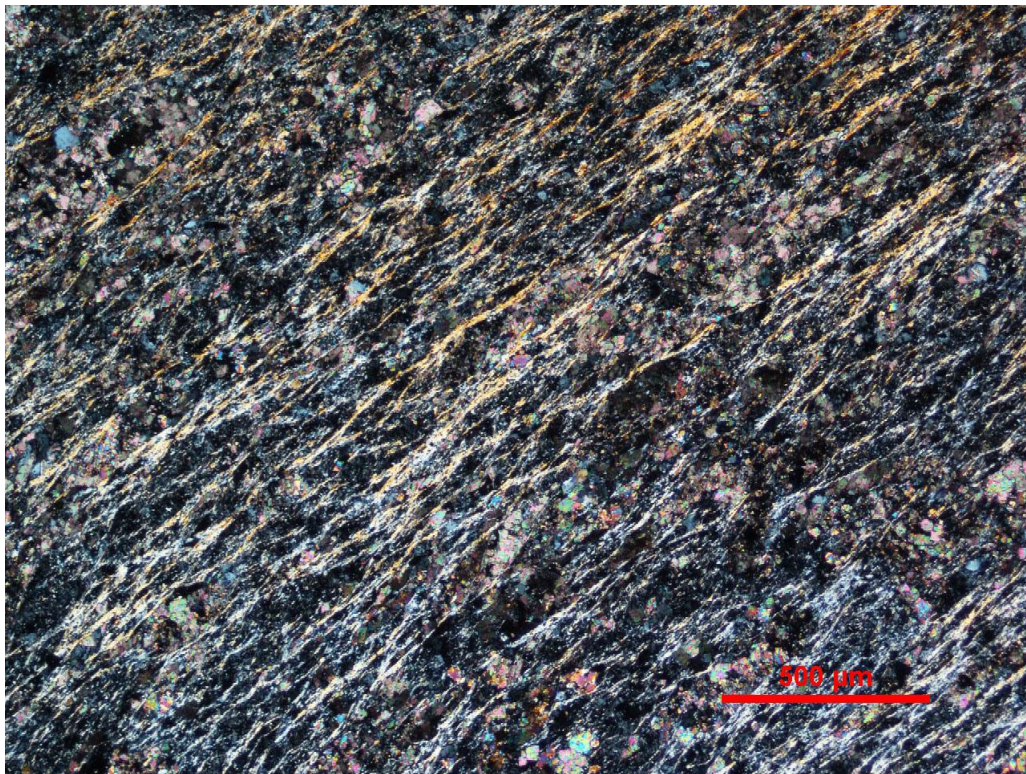
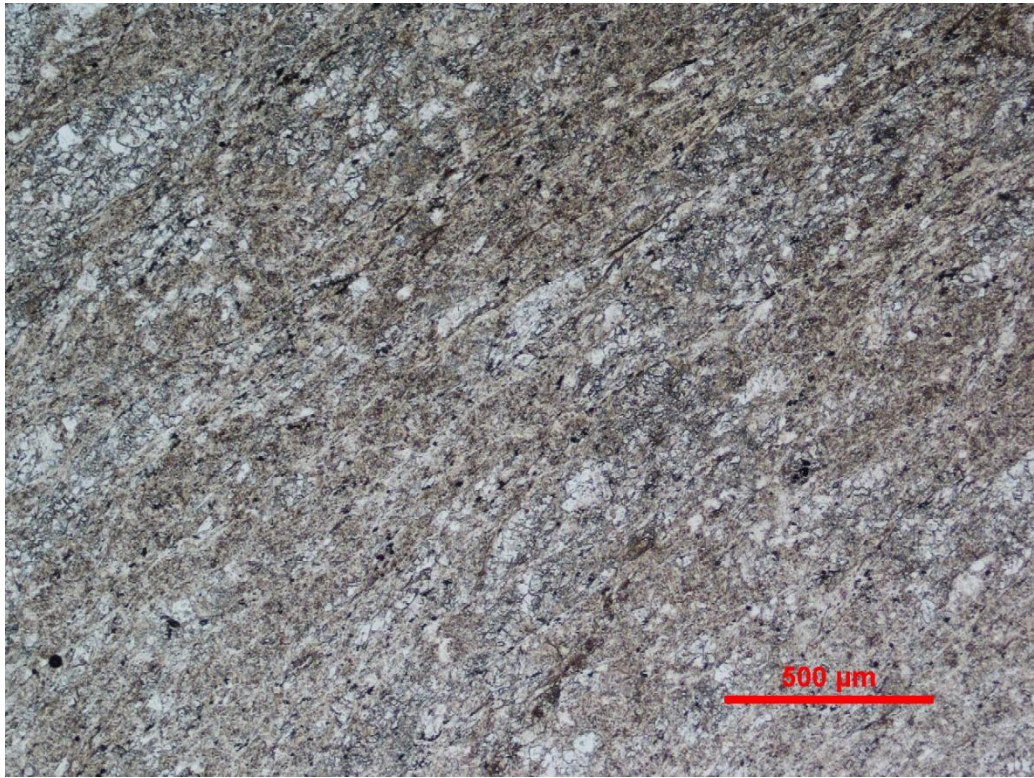
PROTOLITH: Very high dolomite content supports: Mg-rich, Carbonate Protolith; The minor aluminous silicate component suggests a 'dirty' dolomite

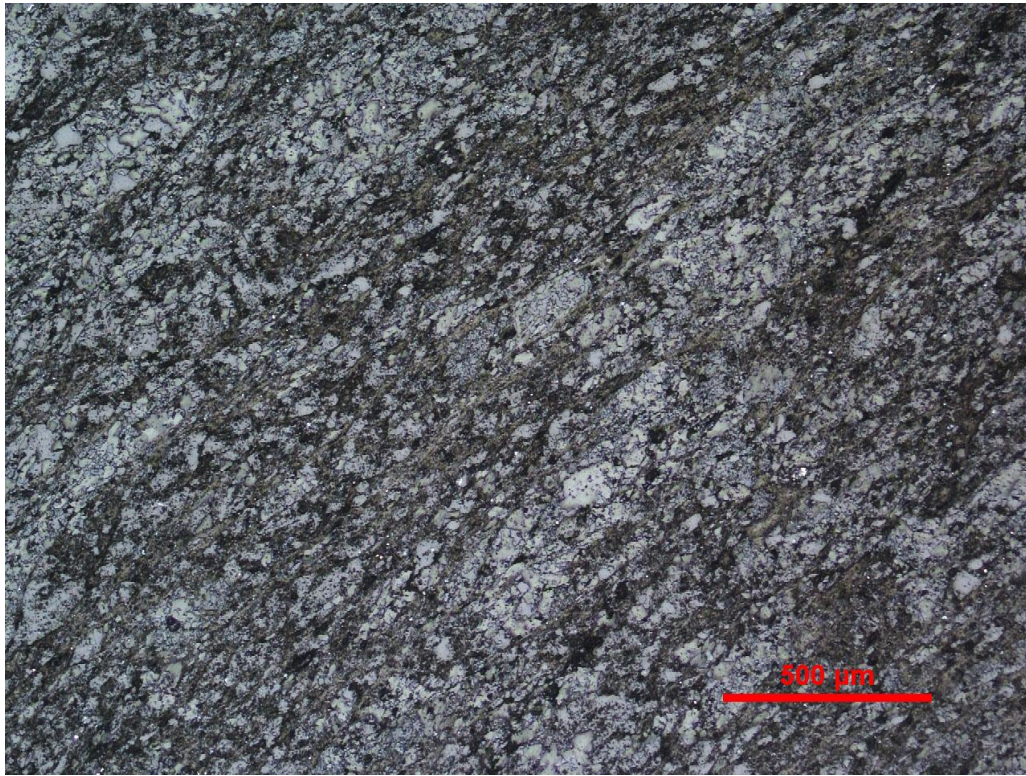


Sample CD-1. Wide-field, full-thinsection view showing sheared dolomite with incipient-weak mylonitic fabrics and disrupted dolomite veins. Top- plane light; Bottom- crossed polarizers.

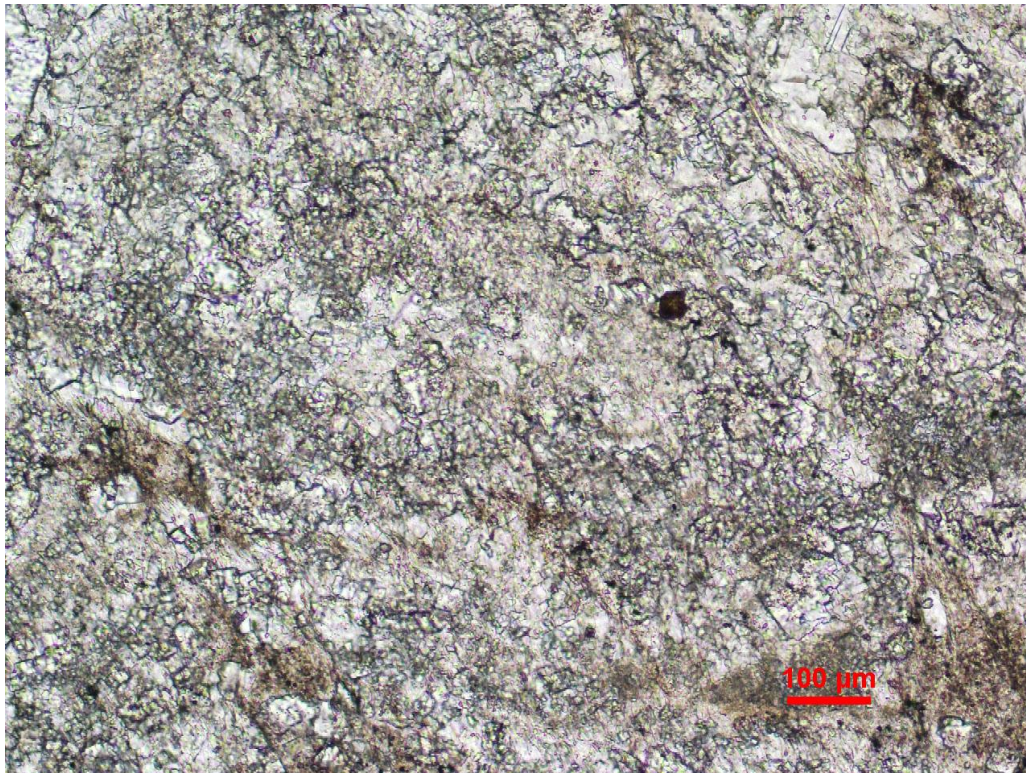


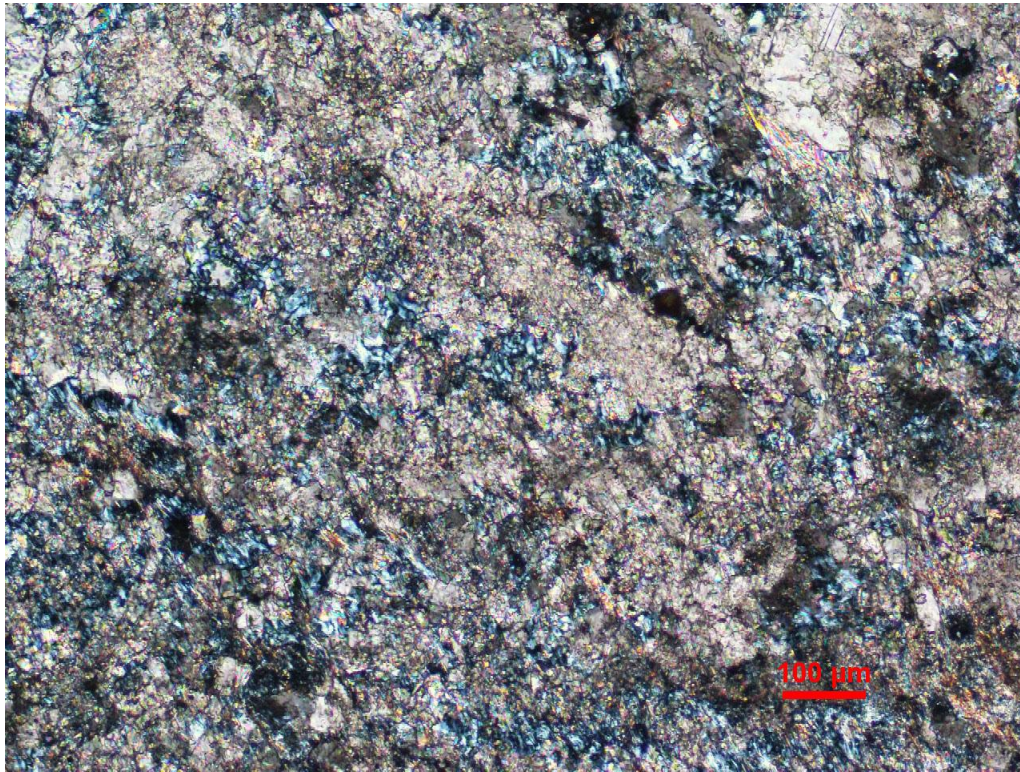
Sample CD-1. Sheared and foliated carbonate with relict carbonate lenses. Top- plane light; Bottom- crossed polarizers.





Sample CD-1. Foliated sericite-muscovite in sheared carbonate. Top- plane light; Middle- crossed polarizers; Bottom- reflected light.





Sample CD-1. Low-birefringent zeolite in carbonate. Top- plane light; Bottom-crossed polarizers.





Sample CD-1. Mylonitic shears in carbonate. Top- plane light; Bottom- crossed polarizers.



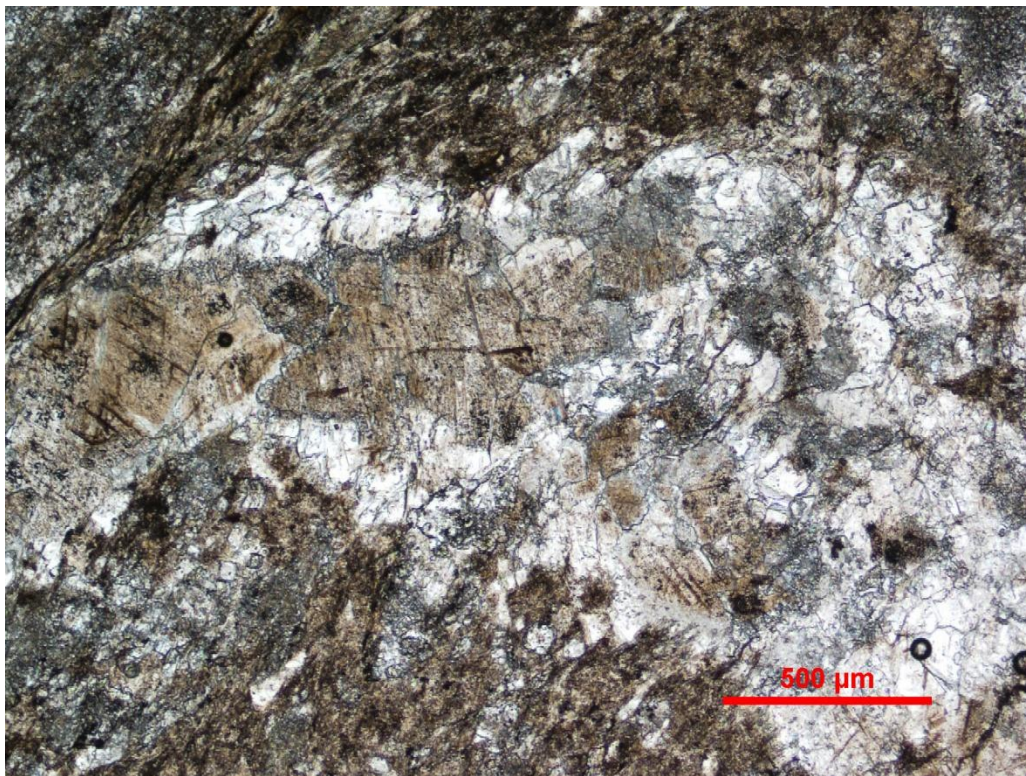


Sample CD-1. Remnant carbonate veins disrupted by mylonitic shear. Top- plane light; Bottom- crossed polarizers.



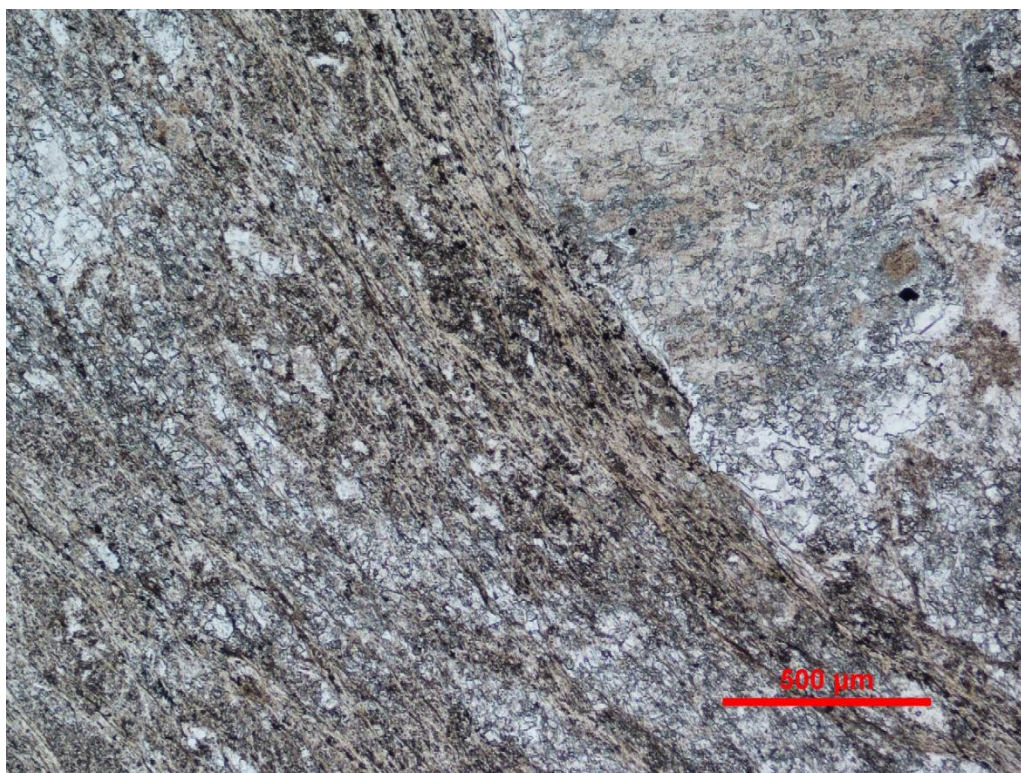


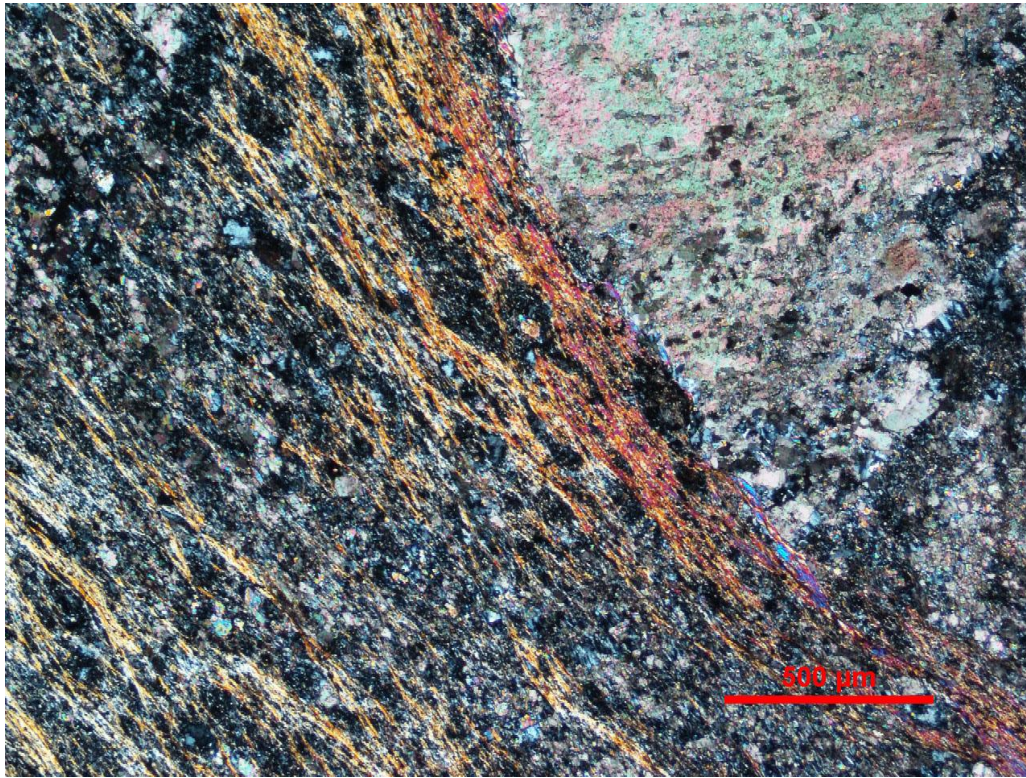
Sample CD-1. Sheared and boudinaged carbonate veins. Top- plane light; Bottom- crossed polarizers.





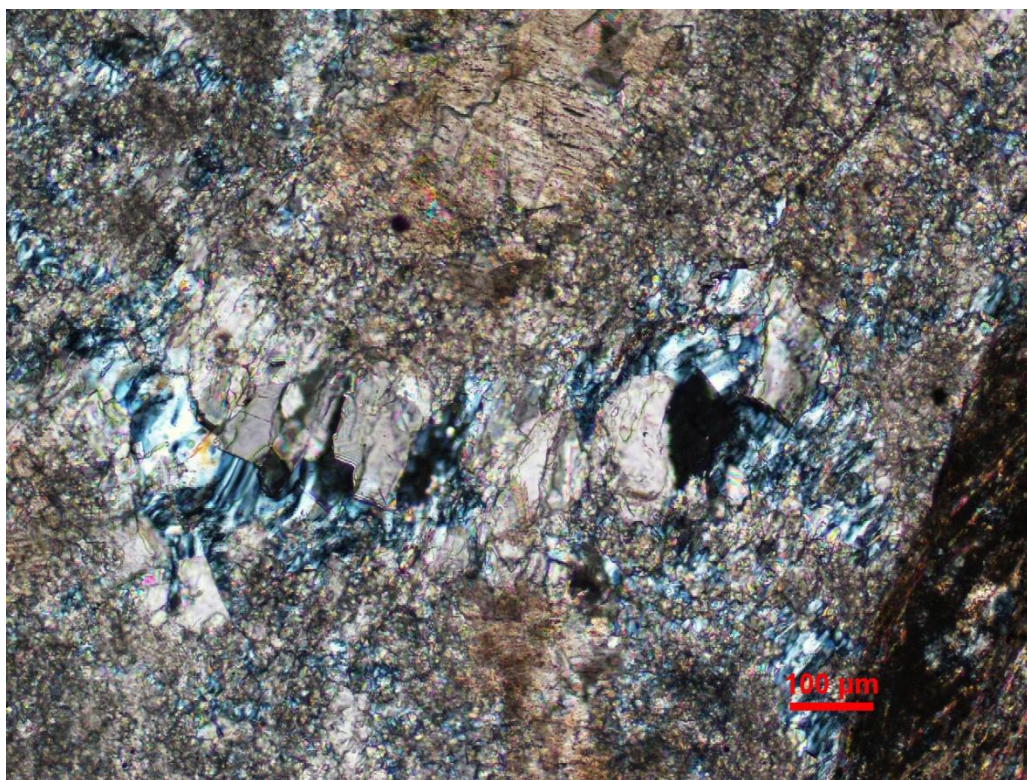
Sample CD-1. Different stages of carbonate in relict carbonate vein. Top- plane light; Bottom- crossed polarizers.



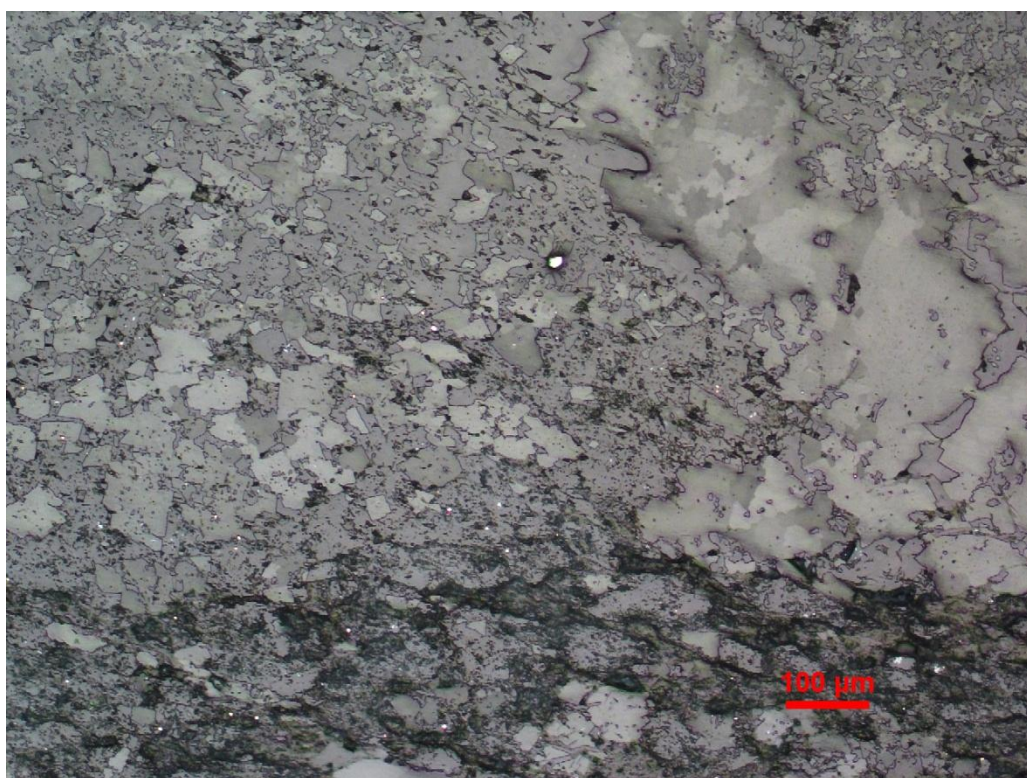


Sample CD-1. Foliated sericite-muscovite in mylonitic shear cutting remnant carbonate vein. Top-plane light; Bottom- crossed polarizers.

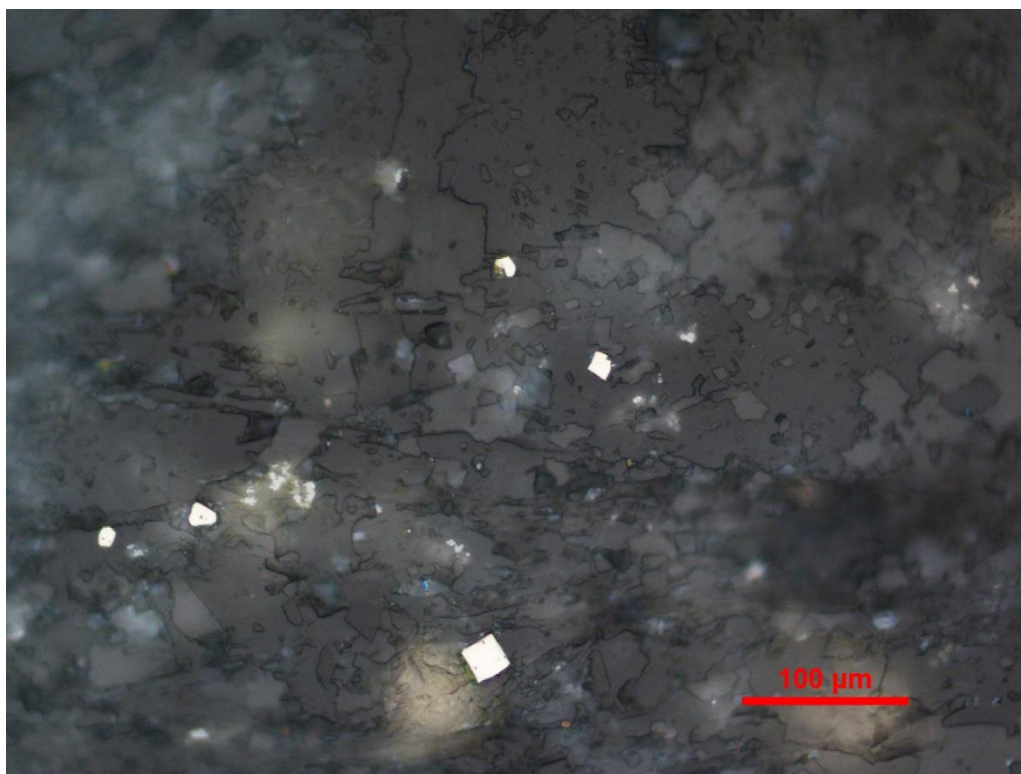




Sample CD-1. Low-birefringent zeolite(?) associated with remnant carbonate vein. Top-plane light; Bottom- crossed polarizers.



Sample CD-1. Fine disseminated subhedral pyrite near remnant carbonate vein. Reflected light.



Sample CD-1. Euhedral disseminated pyrite in carbonate. Reflected light.