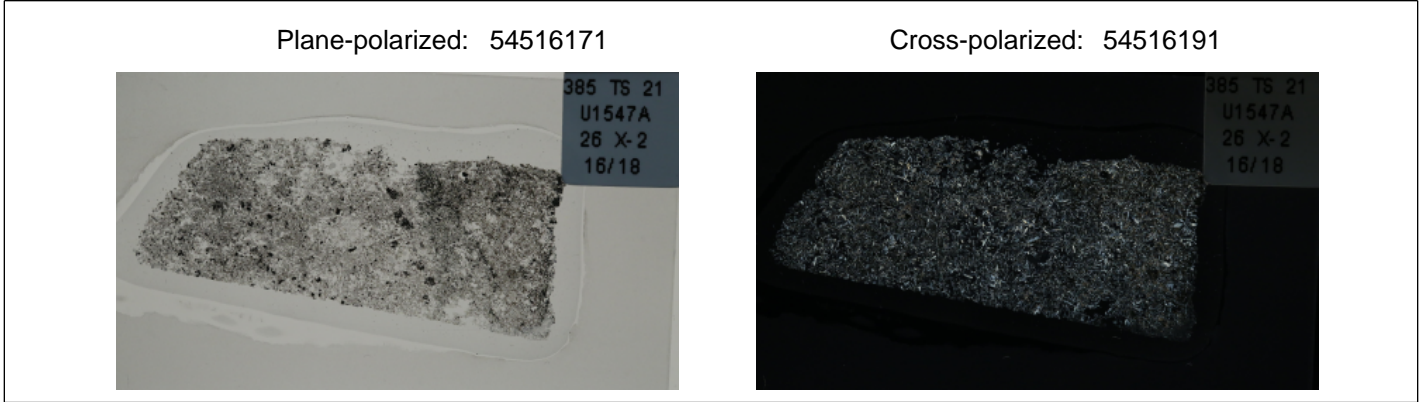


THIN SECTION LABEL ID: **385-U1547A-26X-2-W 16/18-TSB-TS 21** Thin section no.: 21
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty, 5% pyrite GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: moderately vesicular ALTERATION: highly altered VEINS: absent
 Comments: haloed alteration is always chlorites



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

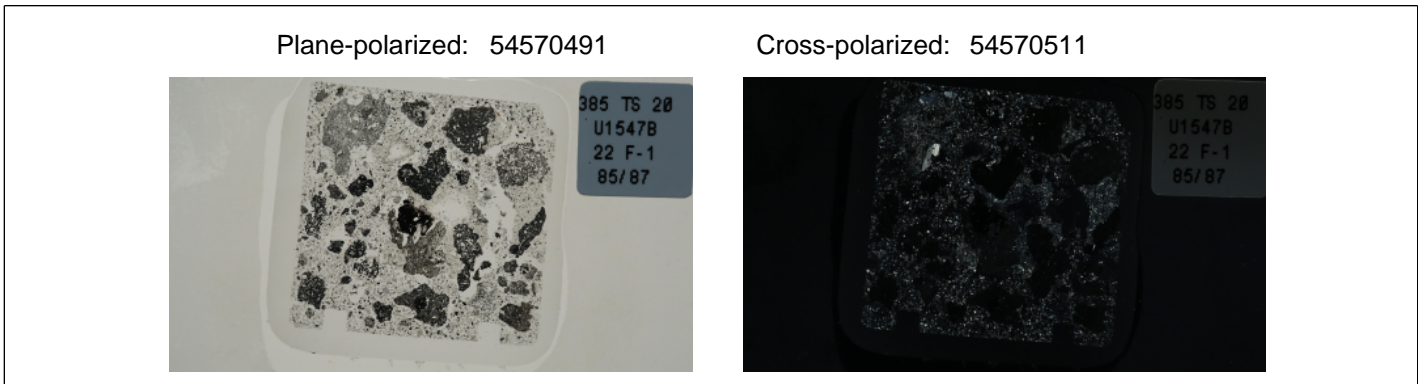
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	60	50	10	0.1	0.8	euhedral	elongate	
Clinopyroxene	30	5	25	0.1	0.5	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
				1	3	angular		

Alteration

Alteration intensity: highly altered **Texture of Alteration:** patchy **Recrystallization extent:** strong [recryst]

THIN SECTION LABEL ID: **385-U1547B-22F-1-W 85/87-TSB-TS 20** Thin section no.: 20
 Observer: km



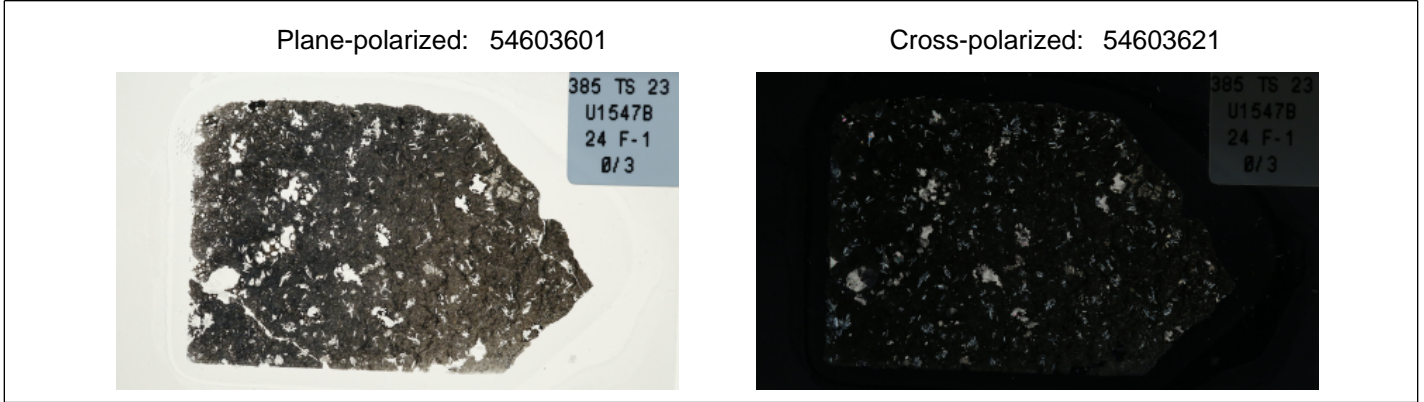
Sediments and Sedimentary Rock
 Lithology: sand

TEXTURE	Percent	CONSTITUENT	Percent
Sand		Siliciclastic Grains/Mineral	92
Silt		Authigenic Minerals	2
Clay		Biogenic Grains	6
Total Texture		Total Constituent	100

Framework grain abundance

Component	%	Component	%	Component	%
Quartz		Ferromagnesium minerals	1	Vitric Grains	
Feldspar		Opaque Minerals	1	Foraminifera	6
Plagioclase	20	Zeolite	2	Radiolarians	
Rock Fragments	70	Pyrite		Diatoms	
Igneous Volcanic Fragments		Quartz (Authigenic)		Organic Debris	
Sedimentary Fragments		Calcite		Plant Debris	
Matrix (Silt and Clay)		Dolomite		Fish Remains	
Biotite		Porosity		Other	
Clay Minerals					

THIN SECTION LABEL ID: **385-U1547B-24F-1-W 0/3-TSB-TS 23** Thin section no.: 23
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: plagioclase phyric basalt sill GROUNDMASS: fine-grained, felty, 3% pyrite GRAIN SIZE DISTRIBUTION: Bimodal TEXTURE: porphyritic PHENOCRYSTS: 5% plagioclase, 1% clinopyroxene VESICLES: moderately vesicular ALTERATION: highly altered



Igneous Petrology

Lithology: plagioclase phyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: porphyritic **Grain size distribution:** Bimodal

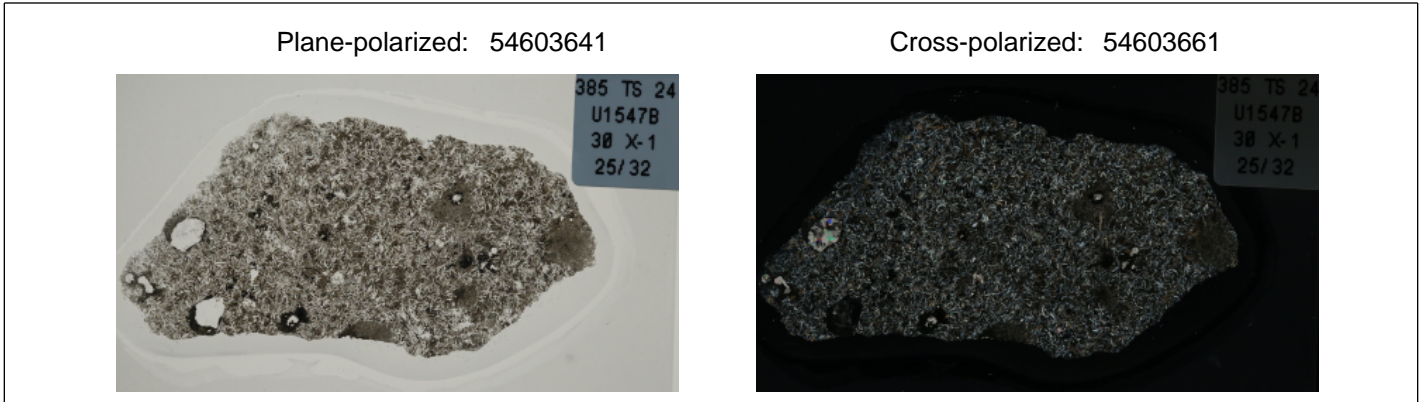
Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	5	3	2	0.4	0.8	euhedral	elongate	
Clinopyroxene	1	0.5	0.5	0.2	0.5	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	1	4	0.1	2	subrounded		

Alteration

Alteration intensity: intensely altered **Texture of Alteration:** coating **Recrystallization extent:** strong [recryst]

THIN SECTION LABEL ID: **385-U1547B-30X-1-W 25/32-TSB-TS 24** Thin section no.: 24
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty, 2% pyrite GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: sparsely vesicular ALTERATION: moderately altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

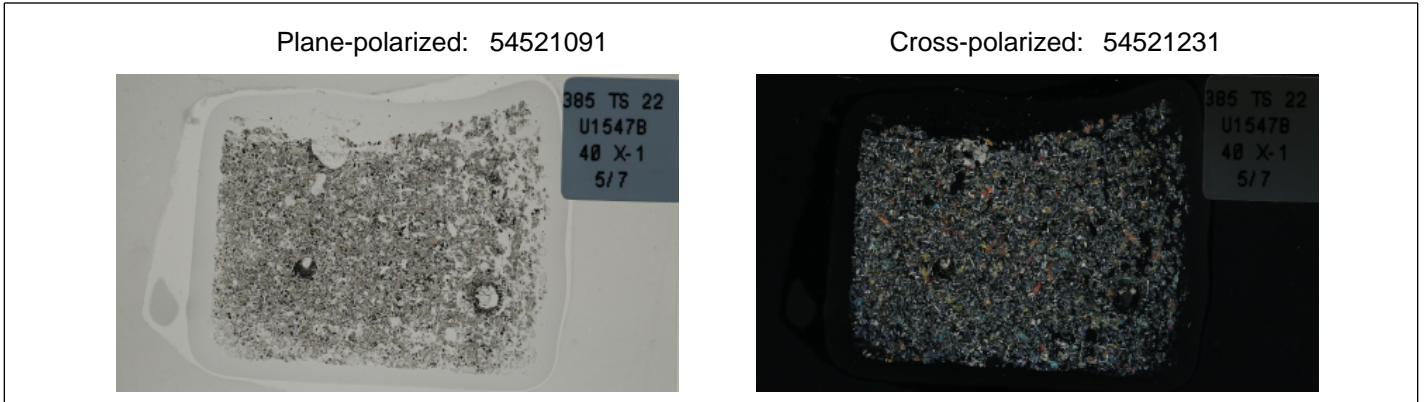
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	60	50	10	0.2	0.5	euhedral	elongate	
Clinopyroxene	35	15	20	0.1	0.5	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	3	0	3	0.5	2	rounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547B-40X-1-W 5/7-TSB-TS 22** Thin section no.: 22
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty, 3% pyrite GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: sparsely vesicular ALTERATION: highly altered VEINS: absent



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

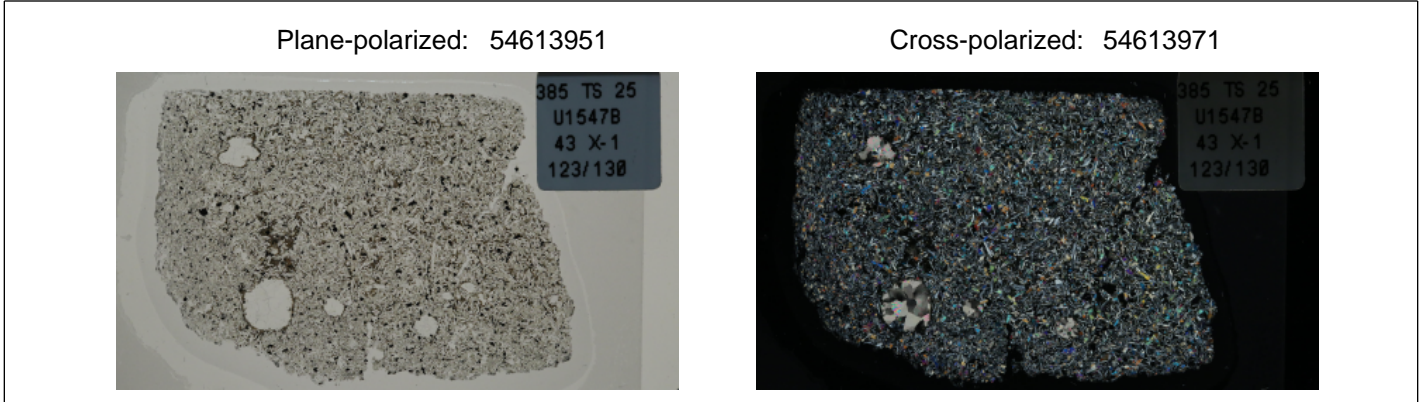
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	65	60	5	0.1	1	euhedral	elongate	
Clinopyroxene	30	20	10	0.1	1	subhedral	equant	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	1	1	0.3	1	subrounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547B-43X-1-W 123/130-TSB-TS 25** Thin section no.: 25
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty, 5% pyrite GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: sparsely vesicular ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

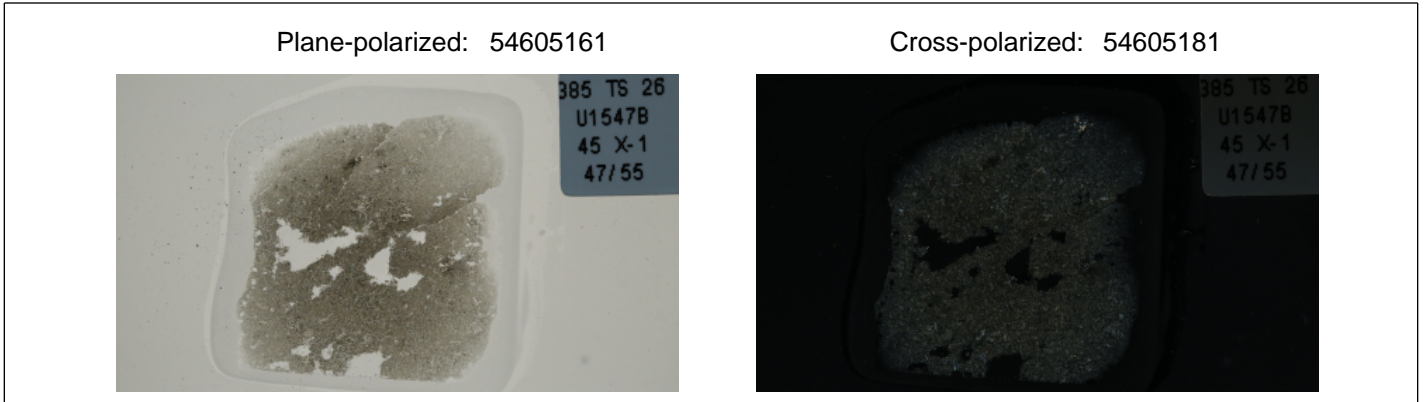
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	65	63	2	0.2	0.8	euhedral	elongate	
Clinopyroxene	30	20	10	0.2	0.6	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	0	2	1	4	subrounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547B-45X-1-W 47/55-TSB-TS 26** Thin section no.: 26
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: none ALTERATION: highly altered



Igneous Petrology

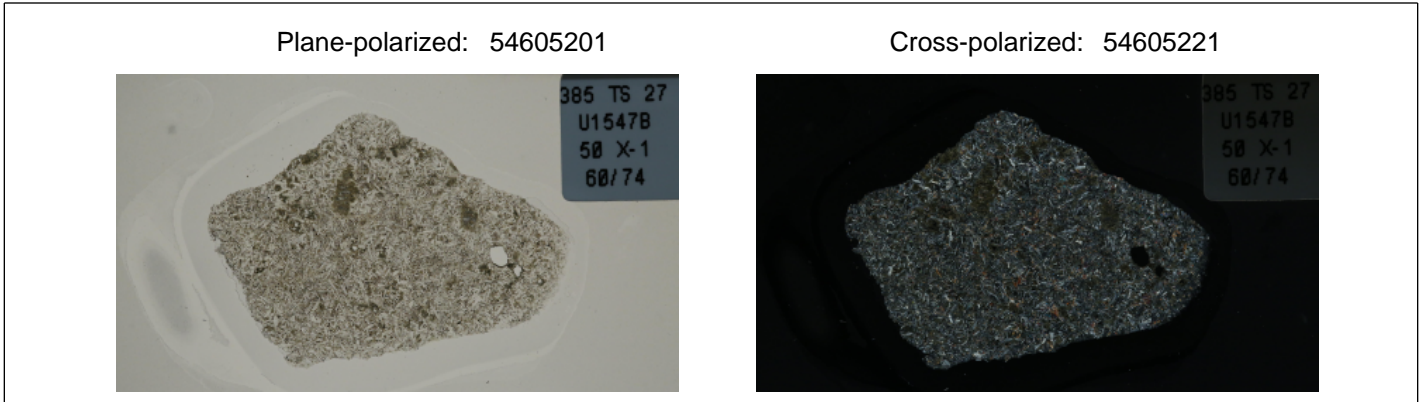
Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	25	25	0.2	0.8	euhedral	elongate	
Clinopyroxene	40	10	30	0.1	0.6	subhedral	elongate	

Alteration

Alteration intensity: highly altered **Texture of Alteration** patchy **Recrystallization extent:** strong [recryst]

THIN SECTION LABEL ID: **385-U1547B-50X-1-W 60/74-TSB-TS 27** Thin section no.: 27
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular TEXTURE: aphyric PHENOCRYSTS: none VESICLES: none ALTERATION: moderately altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

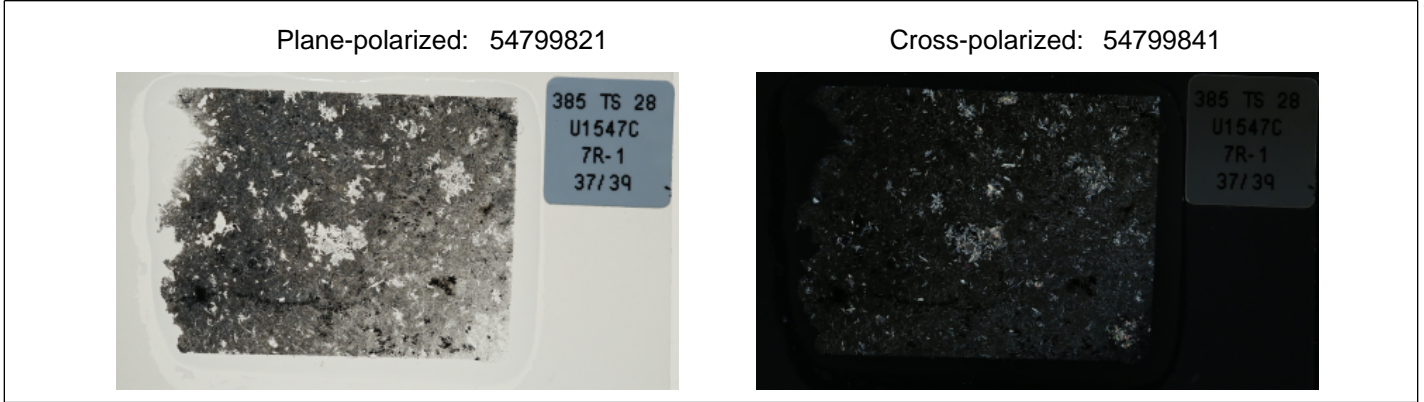
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	65	60	5	0.2	1	euhedral	elongate	
Clinopyroxene	30	15	15	0.1	0.5	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	1	1	0	0.5	2	rounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547C-7R-1-W 37/39-TSB-TS 28** Thin section no.: 28
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: plagioclase clinopyroxene phyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: Bimodal TEXTURE: porphyritic PHENOCRYSTS: 10% plagioclase + 5% clinopyroxene VESICLES: none ALTERATION: highly altered
 Comments: host rock



Igneous Petrology

Lithology: plagioclase clinopyroxene phyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: porphyritic **Grain size distribution:** Bimodal

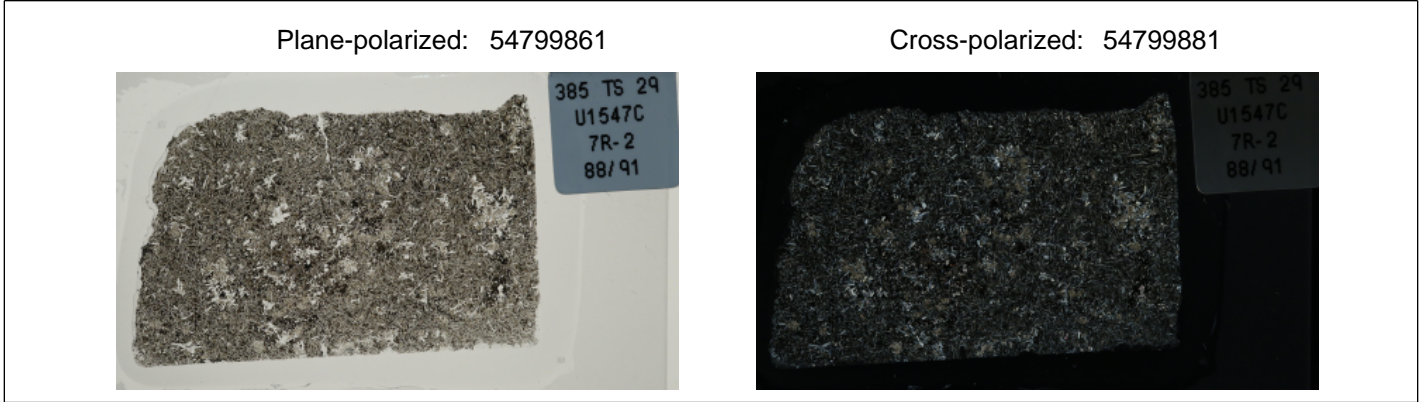
Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	20	15	5	0.5	1	euhedral	elongate	
Clinopyroxene	5	2	3	0.4	0.5	subhedral	elongate	

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	40	20	20	0.2	0.5	euhedral	elongate	
Clinopyroxene	30	2	28					

Alteration

Alteration intensity: intensely altered **Texture of Alteration** coating **Recrystallization extent:** strong [recryst]

THIN SECTION LABEL ID: **385-U1547C-7R-2-W 88/91-TSB_XRF_XRD-TS 29** Thin section no.: 29
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: plagioclase clinopyroxene phyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: Bimodal TEXTURE: porphyritic PHENOCRYSTS: 5% plagioclase + 3% clinopyroxene VESICLES: none ALTERATION: highly altered
 Comments: host rock



Igneous Petrology

Lithology: plagioclase clinopyroxene phyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]

Texture: porphyritic **Grain size distribution:** Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	5	4	1	0.5	1	euhedral	elongate	
Clinopyroxene	3	0	3	0.3	0.5	subhedral	elongate	

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	30	20	0.1	0.3	euhedral	elongate	
Clinopyroxene	40	10	30	0.1	0.2	subhedral	elongate	

Alteration

Alteration intensity: highly altered **Texture of Alteration:** coating **Recrystallization extent:** strong [recryst]

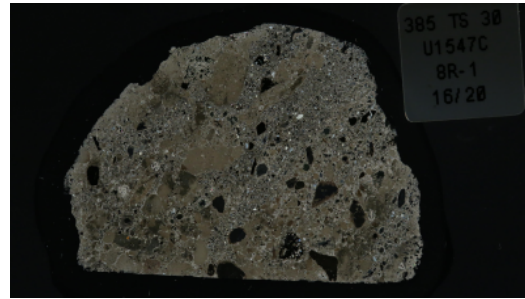
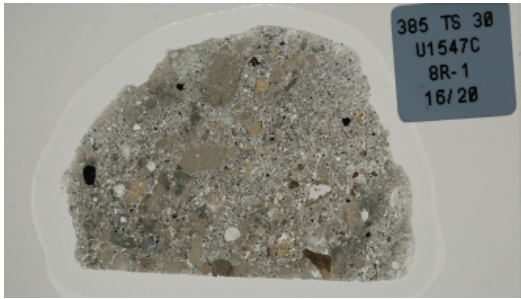
THIN SECTION LABEL ID: **385-U1547C-8R-1-W 16/20-TSB-TS 30**

Thin section no.: 30

Observer: km

Plane-polarized: 54799901

Cross-polarized: 54799961



Sediments and Sedimentary Rock

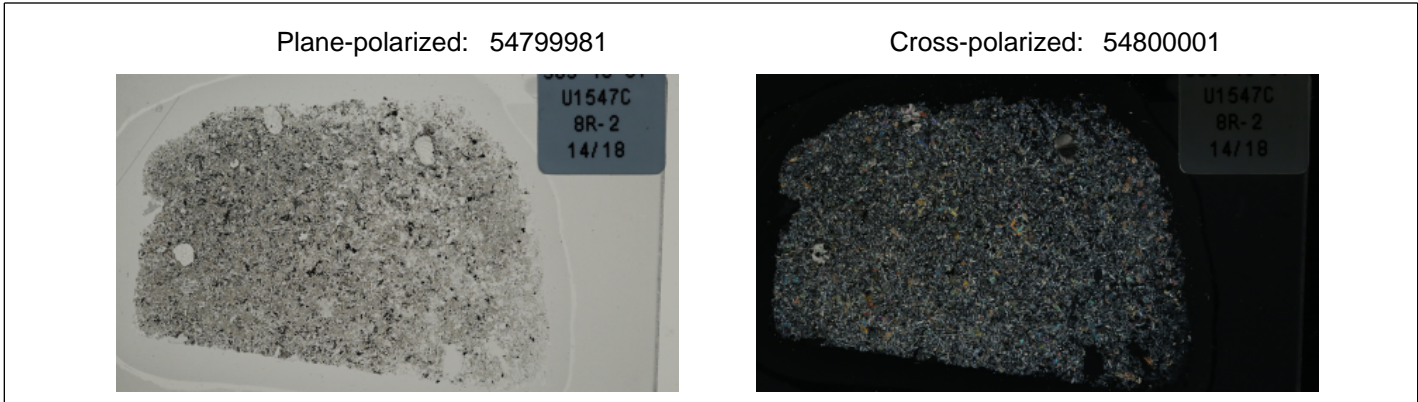
Lithology: sand

TEXTURE	Percent	CONSTITUENT	Percent
Sand		Siliciclastic Grains/Mineral	73
Silt		Authigenic Minerals	10
Clay		Biogenic Grains	6
Total Texture		Total Constituent	94

Framework grain abundance

Component	%	Component	%	Component	%
Quartz		Ferromagnesium minerals	5	Vitric Grains	5
Feldspar		Opaque Minerals	2	Foraminifera	5
Plagioclase	5	Zeolite		Radiolarians	
Rock Fragments		Pyrite		Diatoms	
Igneous Volcanic Fragments	10	Quartz (Authigenic)		Organic Debris	
Sedimentary Fragments	50	Calcite	10	Plant Debris	
Matrix (Silt and Clay)		Dolomite		Fish Remains	1
Biotite	1	Porosity		Other	
Clay Minerals					

THIN SECTION LABEL ID: **385-U1547C-8R-2-W 14/17-TSB_XRD_XRF-TS31** Thin section no.: 31
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 55% pl+40% cpx+5% pyrite TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 2% ALTERATION: slightly altered



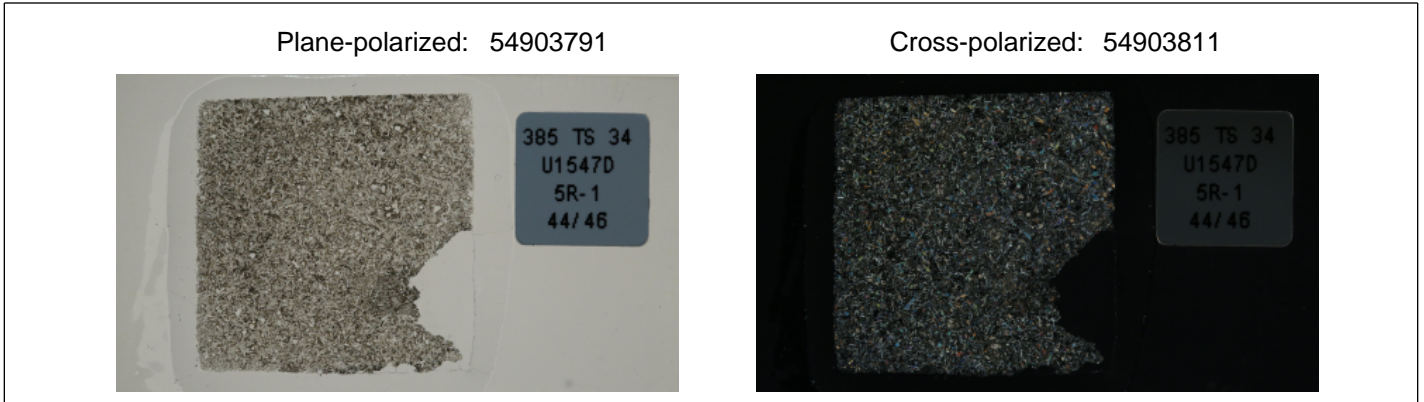
Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	55	50	5	0.5	1	euhedral	elongate	
Clinopyroxene	40	30	10	0.3	0.8	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	0	2	0.5	1	subrounded		

THIN SECTION LABEL ID: **385-U1547D-5R-1-W 44/46-TSB-TS 34** Thin section no.: 34
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 60% pl+40% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 2% ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

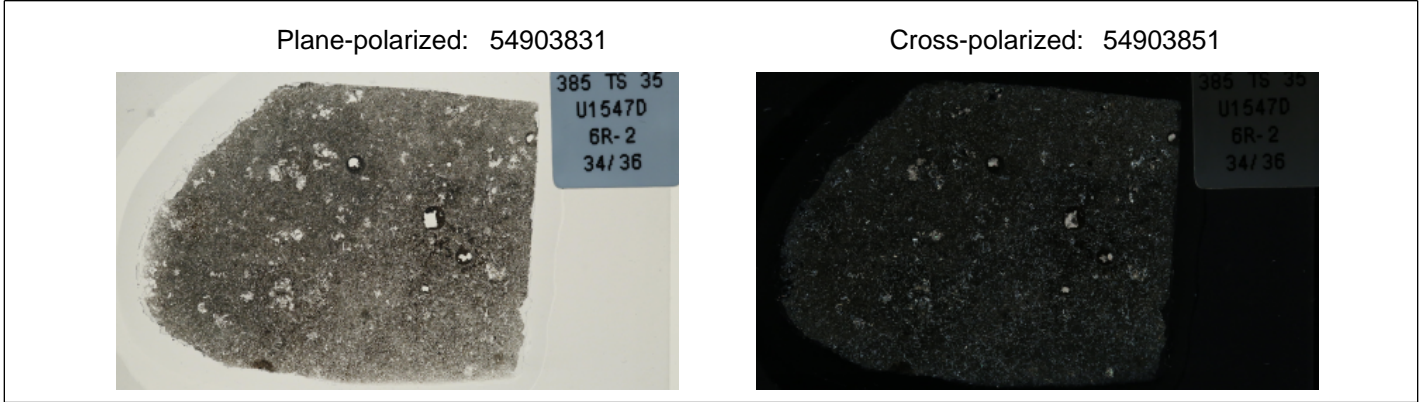
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	60	55	5	0.2	0.5	euhedral	elongate	
Clinopyroxene	40	20	20	0.1	0.3	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	1	1	0.2	0.5	subrounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-6R-2-W 34/36-TSB-TS 35** Thin section no.: 35
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: plagioclase clinopyroxene phyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: Bimodal TEXTURE: porphyritic PHENOCRYSTS: 5% plagioclase + 3% clinopyroxene VESICLES: 2% ALTERATION: highly altered
 Comments:



Igneous Petrology

Lithology: plagioclase clinopyroxene phyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]

Texture: porphyritic **Grain size distribution:** Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	3	2	1	0.4	0.8	euhedral	elongate	
Clinopyroxene	1	0	1	0.4	0.6	subhedral	elongate	

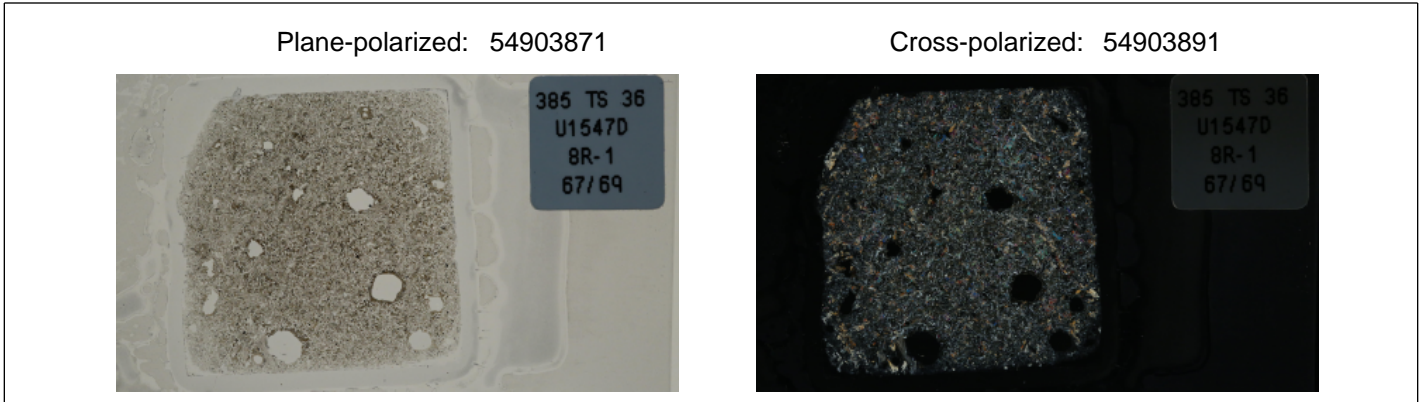
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	30	20	0.1	0.4	euhedral	elongate	
Clinopyroxene	39	4	35	0.1	0.3	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	0	2	0.3	0.8	subrounded		

Alteration

Alteration intensity: highly altered **Texture of Alteration:** coating **Recrystallization extent:** strong [recryst]

THIN SECTION LABEL ID: **385-U1547D-8R-1-W 67/69-TSB-TS 36** Thin section no.: 36
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 50% pl+50% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 5% ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

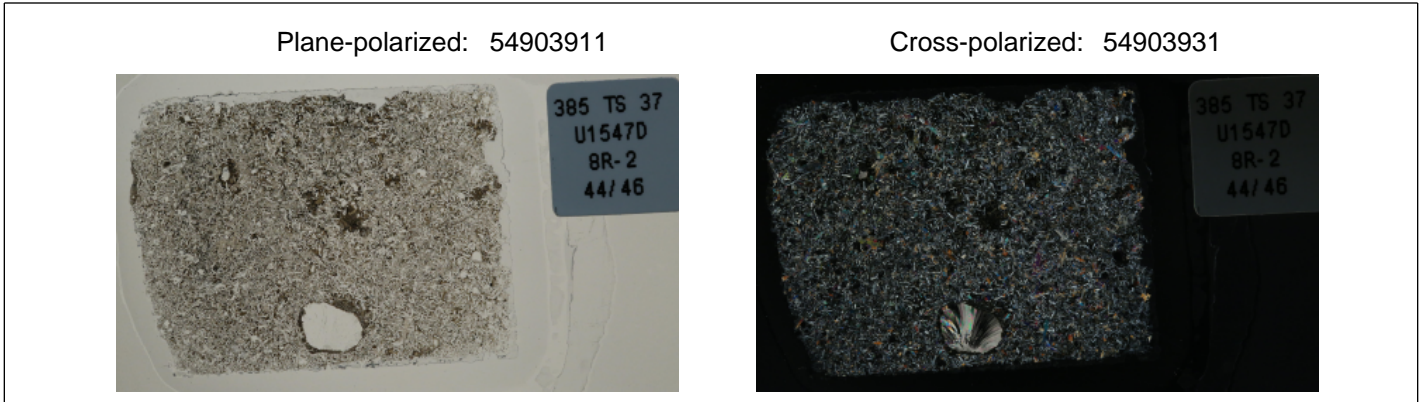
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	45	5	0.5	1	euhedral	elongate	
Clinopyroxene	50	30	20	0.4	1	euhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	4	1	0.2	1	rounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-8R-2-W 44/46-TSB-TS 37** Thin section no.: 37
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 50% pl+50% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 1% ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

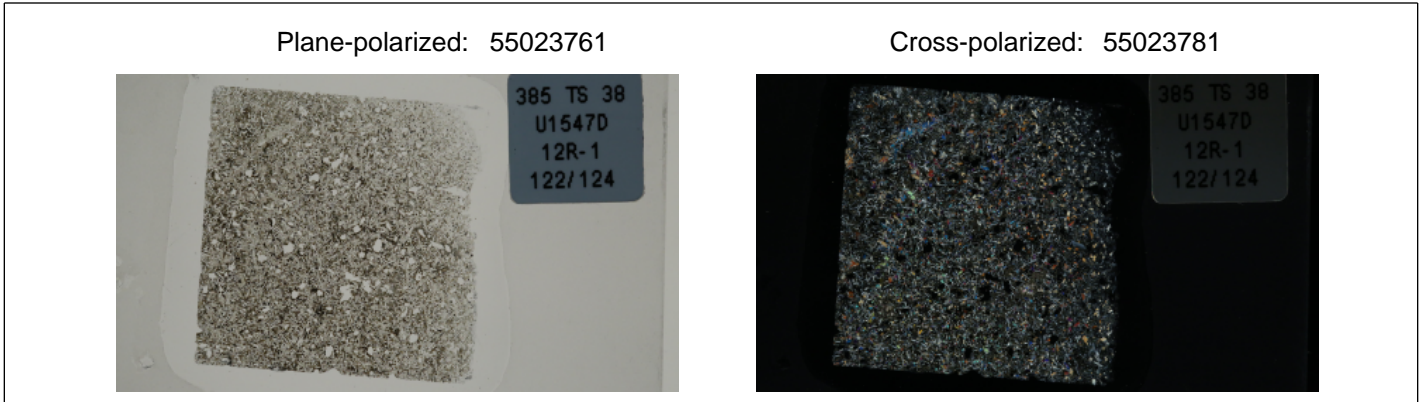
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	50	50	0.5	1	euhedral	elongate	
Clinopyroxene	50	30	20	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	1	0	1	0.5	4	subrounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-12R-1-W 122/124-TSB-TS 38** Thin section no.: 38
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 40% pl + 50% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 10% ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

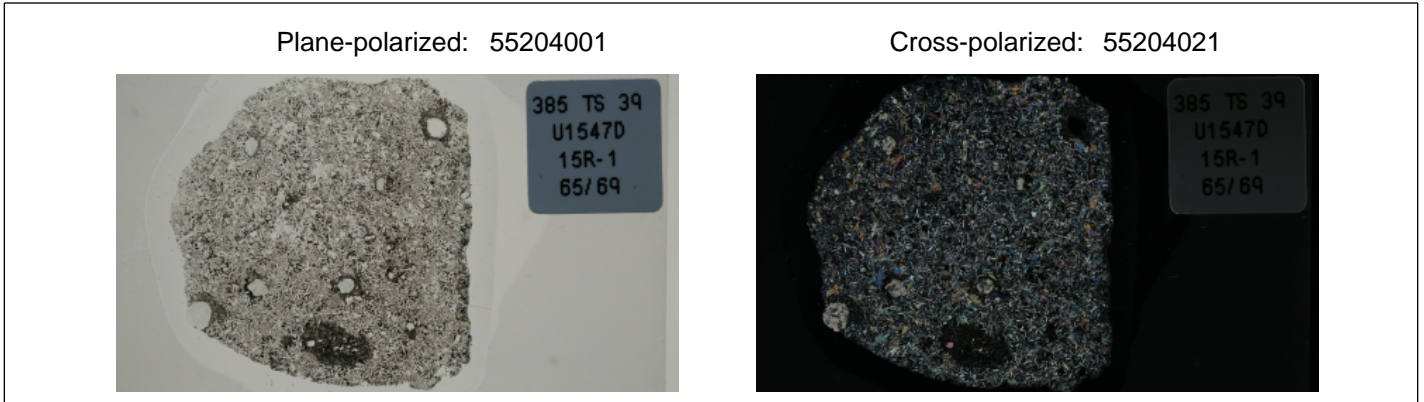
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	40	40	0	0.5	1	euhedral	elongate	
Clinopyroxene	50	30	20	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	10	8	2	0.3	1	subangular		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-15R-1-W 65/69-TSB-TS 39** Thin section no.: 39
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 50% pl + 40% cpx + 5% pyrite TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 5%, rounded ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

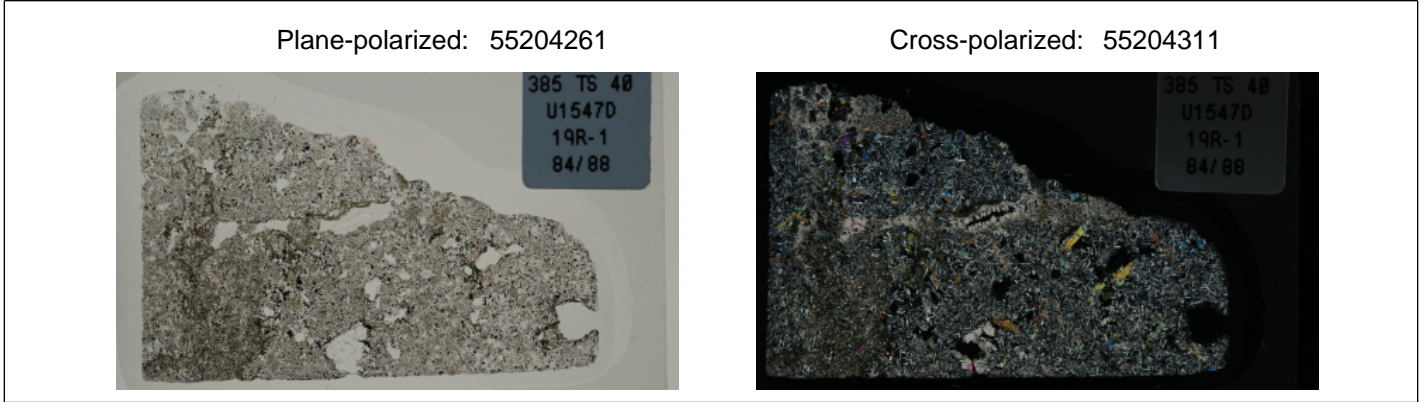
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	45	5	0.5	1	euhedral	elongate	
Clinopyroxene	40	20	20	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	1	4	0.5	2	rounded		

Alteration

Alteration intensity: slightly altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-19R-1-W 84/88-TSB-TS 40** Thin section no.: 40
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: clinopyroxene phyrlic dolerite sill GROUNDMASS: fine-grained, felty
 GRAIN SIZE DISTRIBUTION: equigranular, 55% pl + 40% cpx + 3% pyrite TEXTURE: subophitic PHENOCRYSTS: 2% clinopyroxene VESICLES: 5%, sub-rounded
 ALTERATION: moderately altered



Igneous Petrology

Lithology: clinopyroxene phyrlic dolerite sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: subophitic **Grain size distribution:** Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Clinopyroxene	2	1	1	1	2	euhedral	elongate	

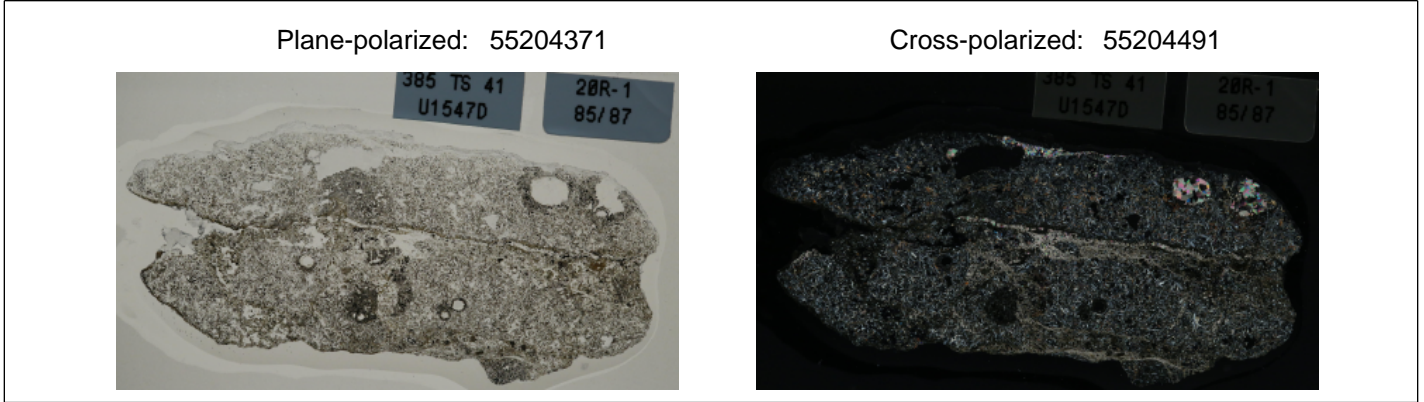
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	55	50	5	0.5	1	euhedral	elongate	
Clinopyroxene	40	20	20	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	3	2	0.5	3	subrounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-20R-1-W 85/87-TSB-TS 41** Thin section no.: 41
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: dolerite sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 60% pl + 35% cpx + 3% pyrite TEXTURE: subophitic PHENOCRYSTS: none VESICLES: 5%, sub-rounded ALTERATION: moderately altered



Igneous Petrology

Lithology: dolerite sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: subophitic **Grain size distribution:** equigranular

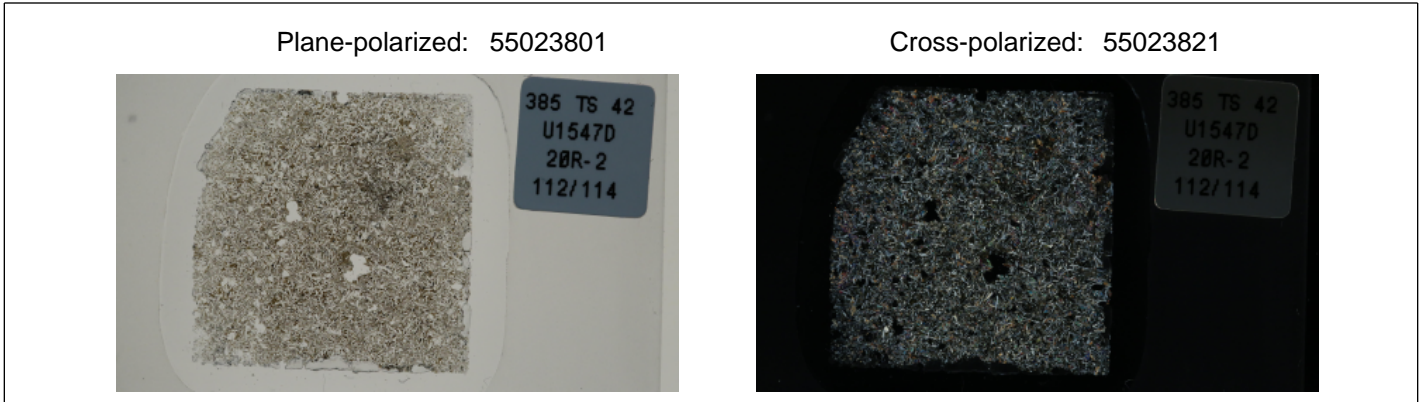
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	60	50	10	0.5	1	euhedral	elongate	
Clinopyroxene	35	15	20	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	2	1	1	0.5	2	subrounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547D-20R-2-W 112/114-TSB-TS42** Thin section no.: 42
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 60% pl + 40% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 5%, sub-rounded ALTERATION: slightly altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: aphyric **Grain size distribution:** equigranular

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	60	55	5	0.5	1	euhedral	elongate	
Clinopyroxene	40	15	25	0.5	1	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	4	1	0.5	2	subrounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

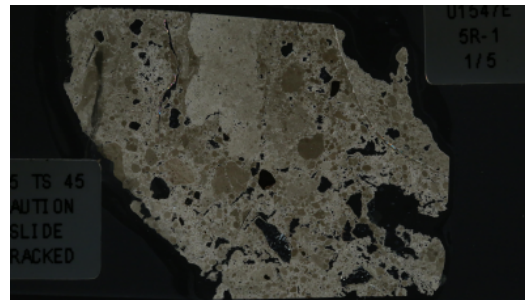
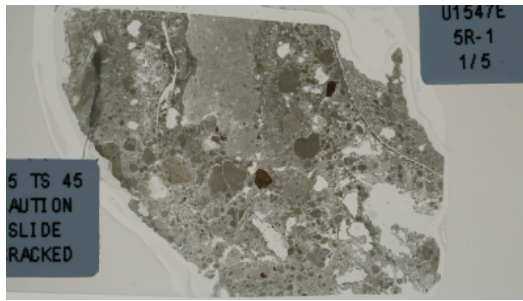
THIN SECTION LABEL ID: **385-U1547E-5R-1-W 1/5-TSB-TS 45**

Thin section no.: 45

Observer: km

Plane-polarized: 55381181

Cross-polarized: 55381231



Sediments and Sedimentary Rock

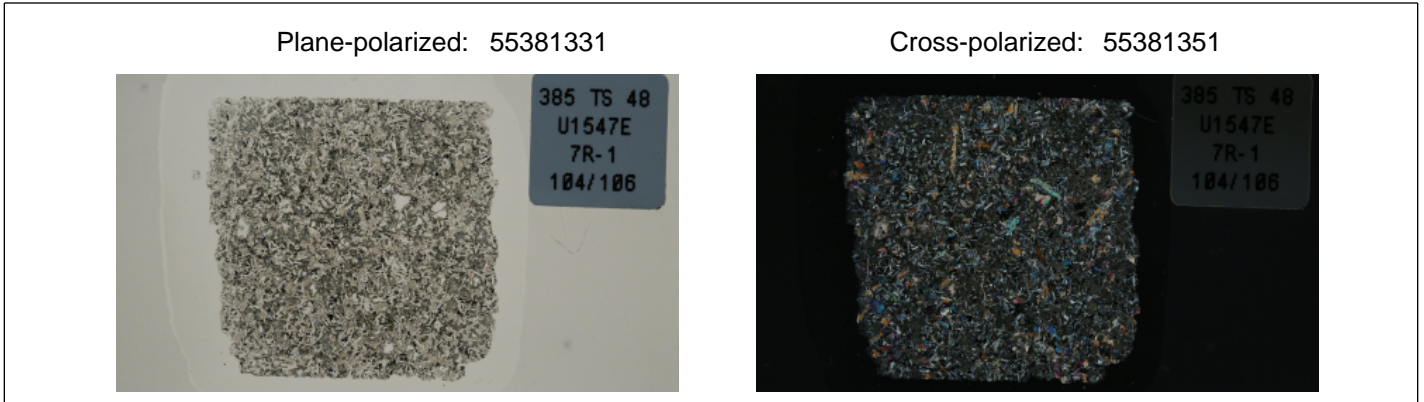
Lithology: conglomerate

TEXTURE	Percent	CONSTITUENT	Percent
Sand		Siliciclastic Grains/Mineral	55
Silt		Authigenic Minerals	40
Clay		Biogenic Grains	5
Total Texture		Total Constituent	100

Framework grain abundance

Component	%	Component	%	Component	%
Quartz		Ferromagnesium minerals		Vitric Grains	
Feldspar		Opaque Minerals		Foraminifera	1
Plagioclase		Zeolite		Radiolarians	
Rock Fragments		Pyrite		Diatoms	
Igneous Volcanic Fragments	4	Quartz (Authigenic)		Organic Debris	
Sedimentary Fragments	50	Calcite	40	Plant Debris	
Matrix (Silt and Clay)		Dolomite		Fish Remains	
Biotite		Porosity		Other	
Clay Minerals					

THIN SECTION LABEL ID: **385-U1547E-7R-1-W 104/106-TSB-TS 48** Thin section no.: 48
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 50% pl + 50% cpx TEXTURE: aphyric PHENOCRYSTS: none VESICLES: 0.5%, sub-angular ALTERATION: moderately altered



Igneous Petrology

Lithology: aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: subophitic **Grain size distribution:** equigranular

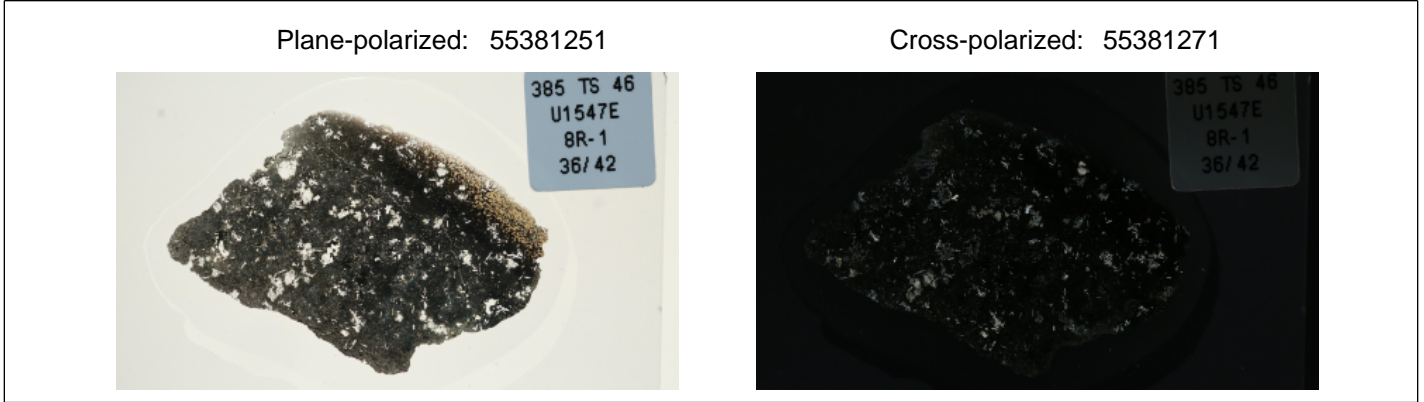
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	50	45	5	0.5	1	euhedral	elongate	
Clinopyroxene	50	20	30	0.5	2	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	0.5	0.3	0.2	0.5	1	subangular		

Alteration

Alteration intensity: moderately altered **Texture of Alteration** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547E-8R-1-W 36/42-TSB-TS 46** Thin section no.: 46
 Observer: Wei Xie
 Thin section summary: Domain 1, LITHOLOGY: palagonite margin Domain 2, LITHOLOGY: plagioclase clinopyroxene phyric basalt sill GROUNDMASS: fine-grained GRAIN SIZE DISTRIBUTION: Bimodal TEXTURE: porphyritic PHENOCRYSTS: 10% plagioclase + 5% clinopyroxene VESICLES: none ALTERATION: intensively altered



Igneous Petrology
 Lithology: palagonite Groundmass grain size (avg.):
 Texture: Grain size distribution:

Igneous Petrology
 Lithology: plagioclase clinopyroxene phyric basalt sill Groundmass grain size (avg.): fine-grained [NMJ05]
 Texture: porphyritic Grain size distribution: Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	10	8	2	0.5	1	euhedral	elongate	
Clinopyroxene	5	1	4	0.5	2	euhedral	elongate	

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	40	10	30	1	0.3	euhedral	elongate	
Clinopyroxene	35	0	35					

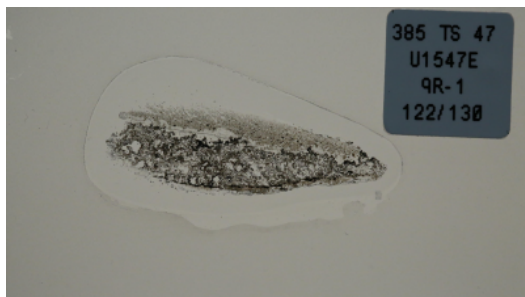
Alteration
 Alteration intensity: intensely altered Texture of Alteration: coating Recrystallization extent: strong [recryst]

THIN SECTION LABEL ID: **385-U1547E-9R-1-W 122/130-TSB-TS 47**

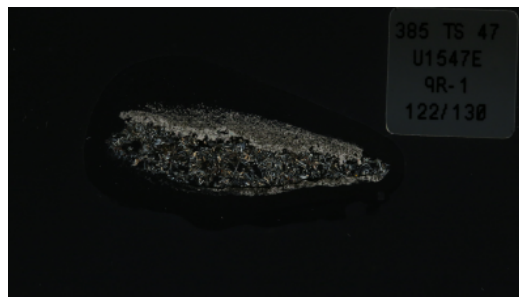
Thin section no.: 47

Observer: km

Plane-polarized: 55381291



Cross-polarized: 55381311

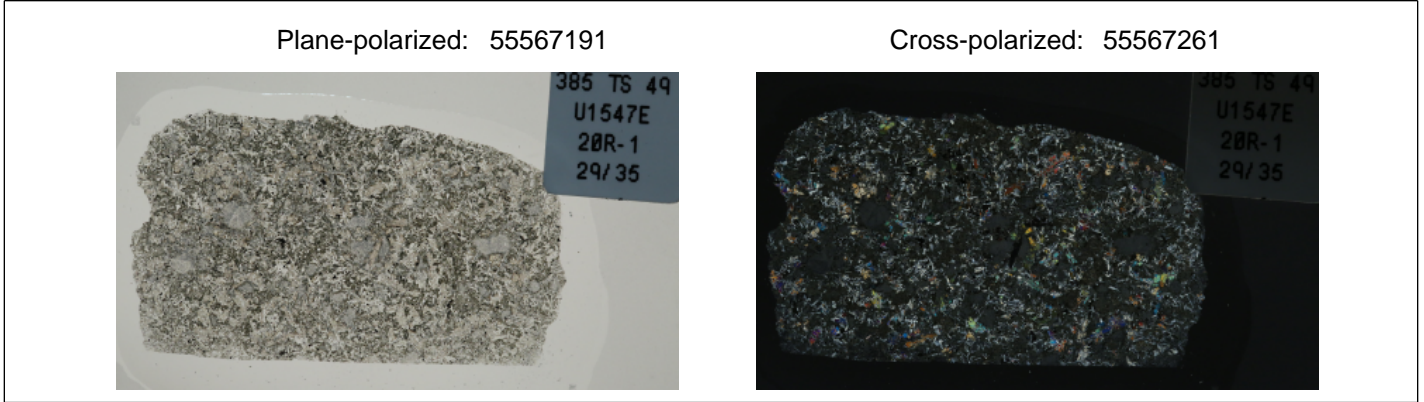


Sediments and Sedimentary Rock

Lithology:

TEXTURE	Percent	CONSTITUENT	Percent
Sand		Siliciclastic Grains/Mineral	
Silt		Authigenic Minerals	70
Clay		Biogenic Grains	
Total Texture		Total Constituent	100

THIN SECTION LABEL ID: **385-U1547E-20R-1-W 29/35-TSB-TS 49** Thin section no.: 49
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 45% pl + 40% cpx TEXTURE: porphyritic PHENOCRYSTS: 10% clinopyroxene VESICLES: 5%, sub-rounded, filled with fine-grained zeolite ALTERATION: moderately altered



Igneous Petrology

Lithology: clinopyroxene phyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: porphyritic **Grain size distribution:** Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Clinopyroxene	10	5	5	0.8	1.5	euhedral	elongate	

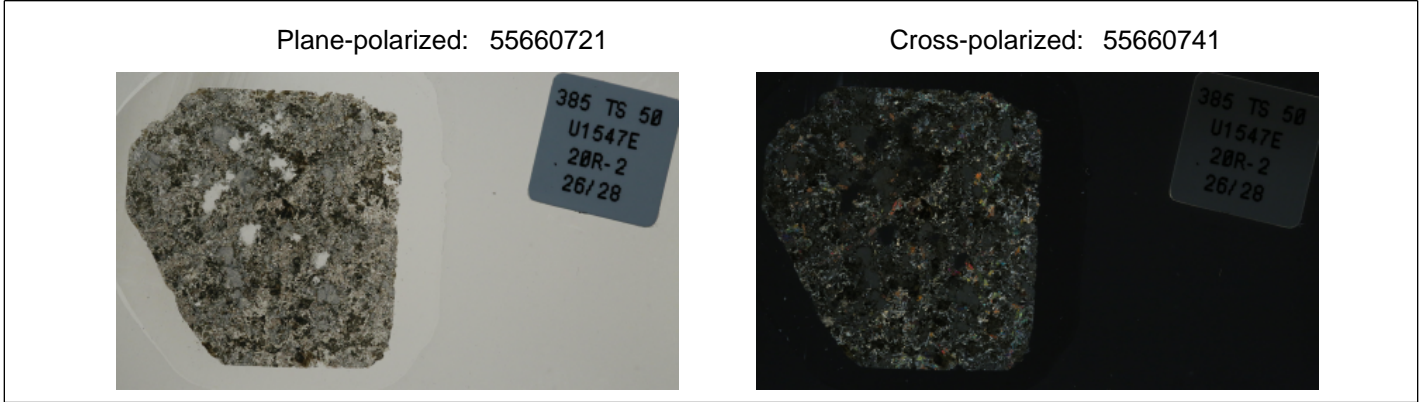
Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	45	35	10	0.2	0.6	euhedral	elongate	
Clinopyroxene	40	10	30	0.2	0.6	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	5	0	5	0.5	2	subrounded		

Alteration

Alteration intensity: moderately altered **Texture of Alteration:** patchy **Recrystallization extent:** weak [recryst]

THIN SECTION LABEL ID: **385-U1547E-20R-2-W 26/28-TSB-TS 50** Thin section no.: 50
 Observer: Wei Xie
 Thin section summary: LITHOLOGY: aphyric basalt sill GROUNDMASS: fine-grained, felty GRAIN SIZE DISTRIBUTION: equigranular, 45% pl + 40% cpx TEXTURE: porphyritic PHENOCRYSTS: 5% clinopyroxene VESICLES: 10%, sub-rounded, filled with fine-grained zeolite ALTERATION: highly altered



Igneous Petrology

Lithology: clinopyroxene aphyric basalt sill **Groundmass grain size (avg.):** fine-grained [NMJ05]
Texture: porphyritic **Grain size distribution:** Bimodal

Phenocrysts	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Clinopyroxene	10	5	5	0.8	1	euhedral	elongate	

Groundmass	Original (%)	Present (%)	Replaced (%)	Size min. (mm)	Size max. (mm)	Shape	Habit	Comments
Plagioclase	45	25	20	0.2	0.5	euhedral	elongate	
Clinopyroxene	40	30	10	0.2	0.4	subhedral	elongate	

Vesicle	Original (%)	Empty (%)	Filled (%)	Size min. (mm)	Size max. (mm)	Shape	Density	Comments
	10	2	8	0.5	2	subrounded		

Alteration

Alteration intensity: highly altered **Texture of Alteration:** patchy **Recrystallization extent:** strong [recryst]