

Exp. 364 Thin Section Descriptions

THIN SECTION Number	10R2 153-155				OBSERVER: M. Whalen	
ROCK NAME:	Radiolarian Wackestone					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Radiolaria	15	25 µm	325 µm	100 µm		Circular, lenticular rads. Most molds filled with spherulitic chalcedony or microcrystalline quartz. Some open molds, locally filled with sparry calcite. PA010631 & 2 well preserved rad. PA010633 - rad. With dinoflagellates inside? Some mold have a thin rim of bladed calcite before chalcedony or calcite infill. PA010636 - rad. mold with bladed calcite and spherulitic chalcedony.
Foramifera	5	50 µm	250 µm	125 µm		Foram chambers filled with spherulitic chalcedony or sparry calcite. PA010634 foram with dinoflagellates? Inside.
Sponge spicules	2			200 µm		Most are chalcedony but some calcite.
Phosphatic grains	,1			250 µm		
Wispy organics?	10					
Opakes	1					
Biotite	<1					
Echinoderm fragment	<1			250 µm		Few echinoderm fragments, partially silicified.
Phosphatic grain, fish scale? & bone	<1	200 µm	5			
Calcspheres?	<1			20 µm		
Siliciflagellates?	1	100 µm	200 µm			
Dolomite	1	20 µm	50 µm			PA010635 dolomite rhombs
Lime mud	50-60			5 µm		

STRUCTURE : cm-scale beds of moderate and dark brown wackestone. Dark brown appears to have more organics. Lighter brown bed has a 7 mm long, silica-replace fossil?. Appears to be fractured and has some quartz with elongate fibrous strands that might replace an original texture. Other parts have a blocky, rectangular pattern reminiscent of woody tissue.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		11R3-41-42			OBSERVER: MW	
ROCK NAME:		Foram Wackestone				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Radiolaria	5	50 µm	200 µm	100 µm		Round, oval, lenticular, triangular shaped rads. Most molds filled with sparry calcite, locally filled with chalcedony or open molds. Some calcitized spines preserved along edges of molds. Photos P9290607 - rad and rad mold. P9290608 - rad, partially calcitized, rad mold with chalcedony, rad mold with sparry calcite
Foraminifer	3	50 µm	325 µm	75 µm		Chambers mainly filled with sparry calcite most with thin rim of bladed calcite before pore filling spar. Locally filled with chalcedony
Sponge spicules	<1			100 µm		Most appear to be calcite but possibly calcitized. Locally quartz.
wispy brown organics?	3	5 µm	600 µm			wavy lines to lenses of dense to diffuse material oriented parallel to bedding, two larger examples one 50 µm thick x 600 µm long, another
opaques	2	5 µm	500 µm			Mostly at the small end of size distribution but 2 large patches on one side of slide. Pyrite?
ostracod	<1			225 µm		
bivalve?	<1			400 µm		Crushed bivalve? Has bi-layer shell. Photo PA010630
Unidentifiable skeletal fragments	1			10-50 µm		
lime mud	80			5-10 µm		Medium to dark brown
<p>STRUCTURE : 2 Fractures cut length ways across slide, partially filled by fine bladed calcite.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		19R3 27-28			OBSERVER: MW	
ROCK NAME:		Radiolarian Wackestone				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Radiolaria	5	25 µm	250 µm	100 µm		Round and lenticular radiolaria, mostly molds filled with spherulitic chalcedony but locally filled with sparry calcite or sediment
Foraminifera	3	50 µm	300 µm	100 µm		Several species, many chambers filled with spherulitic chalcedony that locally replaces test. Some filled with sparry calcite and/or sediment
Sponge spicules	1	50 µm	200 µm	150 µm		Most silica, some carbonate
Wispy brownish organics?	2					Locally dense, locally diffuse
Opales	1			5-10 µm		Mostly pyrite?
Lime mud	85			~5 µm		Mostly light to medium brown, with one 2mm dark brown lens or laminae in center of slide
STRUCTURE :						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		32R3-58-59			OBSERVER: M. Whalen	
ROCK NAME:		Radiolarian Wackestone				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Radiolaria	7	4 µm	550 µm			Radiolaria molds often lined with fine bladed calcite and filled with sparry calcite.
Foramifera	3	50 µm	350 µm			Foram chambers locally lined with fine fine bladed calcite, locally remain open, otherwise filled with sparry calcite or sediment. One foram? replace by opaques (pyrite?)
Sponge spicules	< 1					
Calcispheres	<1					
Ostracods	< 1			60 µm		
Phosphatic grains, scales, bone?	< 1					
Unidentifiable skeletal fragments	< 1			10-60 µm		
Opaques	1			10-20 µm		
Dark gray bushy feature	1	20 µm	60 µm			
Lime mud	85			5-10 µm		Medium gray with dark gray mottling. Photo PA010638.
<p>STRUCTURE : Elongate linear set of voids filled with sparry calcite in middle of slide. One light brown lithoclast toward center of slide, 400 µm across, well rounded. No birefringence change in xpl. Partially phosphatized? A couple more scattered throughout the slide.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	43-3_31-33				OBSERVER: Ludovic Ferrière + Auriol Rae	
ROCK NAME:	Suevite					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Glass* shards/clasts	dominate the PTS			2 mm	green to brown in color	with flow texture and vesicles (some vesicles are filled with carbonates/groundmass material) and clasts of quartz.
Groundmass					grey	fine-grained carbonates (locally small opaque minerals).
Vesicular - elongated area/pockets in part are totally filled with large carbonate crystals.						
Variety of other clasts:						silica-polycrystal. Quartz (with PDFs)/"chert" like (possible ballen silica?).
						diverse other types of melts/glass fragments.
						(foraminifera) fossils clasts.
						mineral clasts (feldspars, quartz, opaque minerals).
Melt-bearing breccia with matrix of carbonates (very fine-grained); >90% of clasts are glass* shards; *a large proportion of the glass is replaced by clay minerals.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	46-3_25-26	SAME AS thin section 43-3_31-33	OBSERVER: Ludovic Ferrière + Auriol Rae
ROCK NAME:	Suevite		

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
See thin section 43-3_31-33						Some nicer examples of flow texture
						In addition to what was seen in thin section 43-3_31-33, nice non-totally digested silica clasts (lechatelierite) with ballen quartz of type V (i.e., chert like)
						AND large clast with fossils (see drawing on handwritten form).
						AND toasted quartz.

A few nice foraminifera fossil clasts; !The size of the clasts is somewhat larger than in thin section 43-3_31-33!

Exp. 364 Thin Section Descriptions

THIN SECTION Number		50-3_122-124			OBSERVER: Ludovic Ferrière + Auriol Rae	
ROCK NAME:		Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Variety of clasts					From sub-angular to sub-rounded (rounded).	large number of fossil clasts (some large ones that can be identified).
						green to brown (altered) glass shards with flow texture and vesicles (some filled with carbonates/groundmass) and silica clasts.
						silica rich (glass or transformed to chert and polycrystalline quartz); possible coesite (?)/highly shocked granite? Ballen quartz of type 2.
						rock fragments (dominated by "opaque minerals") and quartz and accessory minerals.
						plus diverse types of clasts [one highly toasted quartz clast] including a few with irregular margins (i.e., with caps and peninsulas; interactions clast- matrix).
Groundmass						fine-grained carbonates.
<p>Melt-bearing breccia with matrix of carbonates (very fine-grained; matrix supported); Large variety of clasts and much larger clast size than in thin sections 43-3_31-33 and 46-3_25-26.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	55-3_75-77	OBSERVER: Ludovic Ferrière
ROCK NAME:	Suevite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Groundmass						fine-grained carbonates
Clasts of different types						dominated by clasts of glass* "shards" (green to brown) with flow texture and vesicles/some filled with groundmass or larger crystals of carbonates.
						diverse shocked rock fragments (dominated by quartz and/or feldspar; + micas and opaque minerals); some very toasted quartz and with several sets of PDEs: hallo type 4
						limestone / fossil clasts
						quartz/feldspar (monomineralic clasts)
						melt clasts with irregular margins (caps-peninsula)

Melt-bearing breccia with matrix of carbonates (very fine-grained). Very similar to thin section 50-3_122-124, but somewhat smaller clasts (intermediate with thin section 43-3_31-33 and thin sections 46-3_25-26 & 50-3_122-124). More matrix than in thin section 50-3_122-124. *a large proportion of the glass is replaced by clay minerals.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		65-1_117-118			OBSERVER: Ludovic Ferrière + Chris Lowery + Michael Poelchau	
ROCK NAME:		Suevite (thin section dominated by two large carbonate clasts)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Two carbonate clasts with abundant fossils						Shelf carbonate (middle neritic) Early Cretaceous (darker clast); shallow water carbonate, sponge (lighter grey clast).
Small portion of "matrix"						fine-grained carbonates crosscut by veinlets of larger crystals of carbonates*
						large clast of coarse carbonate crystals surrounded by a layer of devitrified (silica) melt
						different types of carbonate clasts (fine-grained, fossils, and coarser grained too)
						shards of silicate melts in part or entirely altered; vesicles (devitrification features)
						one clast of shale
						not seen any shocked quartz and co. (only glass shards and melt as evidence of impact metamorphism)
<p>*Matrix is now brown-colored, compared to the lighter colored "clean" matrix of core 55 and higher.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	69-2_15-19	OBSERVER: Michael Poelchau + Ludovic Ferrière
ROCK NAME:	Suevite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Calcite						
Quartz						
Groundmass						

Highly brecciated rock with a large variety of rock and mineral clasts. Breccia matrix is a fine-grained mixture of Cc plus possible clays and opaque minerals, matrix color ranges from green to brown. Large, micritic subrounded limestone clasts occur. Cataclastically deformed Qz-rich, subdomains occur, as well as dextrally sheared Cc zones, both with fluidal textures. Some epidote alteration.

Shock: clasts are highly shocked, mainly shock melted. Diaplectic glasses are very abundant (possible coesite?). Silica melts are generally recrystallized. Ballen silica occurs in a few clasts.

NOTE: Thin section has less than 25 µm thickness; Cc has lower birefringence than usual.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		76-1_130-131_a			OBSERVER: Michael Poelchau + Ludovic Ferrière	
ROCK NAME:		Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Calcite						In clasts, as hydrothermal minerals, as matrix.
Quartz						Rare PDFs (up to 2 sets, decorated).
"Melt"/Glass (altered to clay minerals)						Two large clasts, fully devitrified, with μm long Plag(?) crystals. One of the two clasts shows SPO of Plag crystals. Cc & Qz inclusions. Diffuse, pervasive "dusting" of green alteration, microcrystalline. A third clast is only partially devitrified. Clast is rimmed with Cc.
Matrix						Presumably Cc, microcrystalline, pervasive brown coloration.
Plagioclase						some almost entirely sericitized.
Fossil clast						
STRUCTURE :						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	76-1_130-131_b (same as thin section 76-1_130-131_a)	OBSERVER: Michael Poelchau + Ludovic Ferrière
ROCK NAME:	Suevite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Calcite						In clasts, as hydrothermal minerals, as matrix.
Quartz						Rare PDFs
"Melt"/Glass						as in thin section 76-1_130-131_a
Matrix						Presumably Cc, microcrystalline, pervasive brown coloration.

A pure calcite "melt" clast shows sweeping extinction and has a "feathery" texture. Quartz clasts have sutured grain boundaries, high strain; some with coating of calcite.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		80-2_137-139			OBSERVER: Michael Poelchau + Ludovic Ferrière	
ROCK NAME:		Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Clasts:						
limestone					micritic/fossils	
devitrified melt (shard)					µm sized plagioclase laths	As in thin section 76-1_130-131_a.
brecciated granite					quartz, K-feldspar, plagioclase	PDFs in feldspars and quartz.
green-brown glass* fragments						
mafic rock						
numerous other clasts						
matrix					fine-grained	presumably calcite bearing, strong brown discoloration.
calcite						often on clast rims or in fractures.
<p>Ballen quartz (type V); *glass is in large part altered to clay minerals. NOTE: !Poorly prepared/bad thin section!</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	82-5_0-15				OBSERVER: Naotaka Tomioka + Auriol Rae + Ludovic Ferrière	
ROCK NAME:	Impact melt rock (clast-poor)					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Quartz					all occur within clasts of granitoid and gneiss.	PDF, up to 3 sets; undulatory extinction; and ballen quartz (type 3) and toasted quartz; most common individual mineral clast
plagioclase					all occur within clasts of granitoid and gneiss.	PDFs, undulatory extinction, mostly mottled.
biotite						
small opaque mineral grains						both in felsic clasts and in matrix.
K-feldspar					all occur within clasts of granitoid and gneiss.	
Silica/quartz glass altered to "chert" plus recrystallized quartz						
groundmass						very rich in opaque minerals, brown in PPL, contains very fine plagioclase laths, flow oriented around clasts; groundmass contains elongate vesicles, always filled or partially filled with calcite and/or fibrous
<p>Clasts and large crystals mostly aligned along the same direction; black matrix consists of very fine crystals; clasts sometimes permeated by the groundmass.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	85-2_0-22	OBSERVER: Axel Wittmann
ROCK NAME:	Impact melt rock	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		

Impact melt rock: Upper part (~40 %) of thin section is a dark, aphanitic, microcrystalline melt rock that is clast-bearing. Lower 60 % of the thin section is vesicular, strongly altered and rich in smectite. Contact between domains is sharp along a fracture. Two (1 cm) clasts of recrystallized carbonate (equigranular fabric of ~50 µm grains) occur in the vesicular part of the section. Fractures contain sparitic calcite of >100 µm grains that show no deformation.

Exp. 364 Thin Section Descriptions

THIN SECTION Number	89-3_39-43		OBSERVER: Axel Wittmann + Auriol Rae			
ROCK NAME:	Impact melt rock					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Smectite	55	~10 µm	~100 µm	~10 µm	Scaly to tweed texture of fine-grained phyllosilicates	Secondary alteration product possibly of formerly glassy melt domains. May contain zeolites, SiO ₂ and chloritoid/chlorite.
Carbonate	5	~10 µm	~100 µm	~50 µm	Sparry calcite crystals fill vugs & fractures in altered domains	Assemblage with smectite/phyllosilicates in green, altered domain.
Microcrystalline melt rock	~35				~10 µm laths of phenocrysts in aphanitic groundmass	Possibly partly altered. Contains partly digested clasts and blebs of opaque minerals. Grey-dark grey in PPL, contains plagioclase and opaque minerals. Contains large quantities of lithic clasts.
Quartz	10	~10 µm	~100 µm	~20 µm	Recrystallized clasts in melt rock	Largest clast is a triangular quartzite with relict sedimentary layering. Other Qtz-rich clasts are variably assimilated, some with reaction coronas towards melt. A few SiO ₂ clasts have ballen textures.
						One clast of quartz displays decorated PDFs within an assemblage with altered plagioclase with an equilibrated metamorphic fabric.
Weathered carbonate melt rock	~40					Overall, highly dispersive, green-yellow in PPL, anomalous birefringence. Contains calcite, chlorite, occasional opaque minerals and a fibrous pale yellow mass fibrous mineral that is glassy in fill and green in ground
Lithic clasts:						Most clasts, particularly the granitoids, have diffuse margins, some have recrystallization textures.
granitoid	~15					quartz crystals have PDFs and are occasionally toasted.
quartz	~5					PDFs, and some are almost totally annealed to sieve texture.
<p>Impact melt rock: islands of dark, aphanitic melt (30%) fade into light green mass; 0.3 mm thick contact zones between the green and black domains are translucent. Up to 0.5 cm angular to sub-rounded clasts that are variably assimilated occur in the melt rock. Interfingering of melt and breccia, small clasts (<1 cm) of melt within the breccia. All melt has diffuse pale-colored margins. Clast seeming variably altered impact melt rock with microcrystalline texture.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		93-3_51-52			OBSERVER: Naotaka Tomioka + Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Impact melt rock (clast poor)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Quartz					Xenocrystic mineral fragments	PDFs, undulatory extinction, toasted in some cases.
Plagioclase					Xenocrystic mineral fragments	PDFs, undulatory extinction.
K-feldspar					Xenocrystic mineral fragments	
Opaque minerals						
Groundmass						Consists of very fine lath shaped plagioclase (brown in PPL), isotropic, equant minerals.
Rock clasts						Mostly granitoids, occasionally polycrystalline quartz and clast of carbonate melt?
<p>Some silica melt/glass clasts are recrystallised (chert-like texture). Contains partially and fully infilled voids; fill material is pale-yellow green fibrous mineral. Impact melt rock (clast-poor) with fine-grained matrix made of tiny laths of plagioclase and opaque minerals (magnetite) in altered (clays) melt. Clasts consist of minerals (mainly quartz, also K-feldspar, and plagioclase), partly digested mineral and rock clasts (granitoid), and melt clasts.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		97-1_117-120			OBSERVER: Ulrich Riller + Michael Poelchau + Xiao Long + Ludovic	
ROCK NAME:		Granitoid				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase	20				clouded	Zoning is enhanced by saussuritization, possible PDFs, brecciated, kinked.
K-feldspar	40				clouded	perthitic, possible PDFs
Quartz	30					serrated grain boundaries, some subgrain formation, undulatory extinction, PDFs, PFs; PDFs decorated some grains toasted. Almost all, 99%, of the grains show PDFs from 1 to 2 (4) sets
Biotite	2					retrogressed to chlorite
Chlorite	2					ghosts of biotite
Muscovite	~1					secondary on biotite
Titanite						
Opaque minerals						
<p>Pervasively fractured and brecciated, incipient marginal recrystallization of K-feldspar by grain-boundary bulging, plagioclase is kinked, thin cataclastic zones. See drawings on hand-written sheet.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	98-3_94-95		OBSERVER: Auriol Rae + Xiao Long			
ROCK NAME:	Impact melt rock (mix of clast-rich carbonate melt and clast-poor silicate melt)					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Silicate melt: Groundmass						Very rich in opaque phases (magnetite), very fine-grained
Silicate melt: Lithic clasts						Generally granitoid clasts with diffuse margins
Silicate melt: Mineral Clasts						Commonly quartz, recrystallized (though occasionally with cores containing PDFs). Occasional K-feldspar and plagioclase clasts
Carbonate melt: Groundmass						Infilled void spaces with 1mm-sized calcite spots, contains abundant fluxion textures, very fine grained, yellow-green coloration, rich in calcite, some quartz, and yellow green fibrous minerals, very clast rich
Carbonate melt: Lithic clasts						Two 0.5-1cm clasts of limestone with well-equilibrated, fine-grained texture, >95% calcite. Sub 2-mm silicate glass shards.
<p>Rock is principally composed of two types of melts, one silicate, and one very rich in carbonate minerals. Silicate melt contains fractures into which carbonate melt has infiltrated, some void spaces in these silicate melt veins contain sparry calcite and dactylic growths of yellow-green fibrous minerals.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		108-1_0-2			OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière	
ROCK NAME:		Granite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase						Kinked, possible PDFs
K-Feldspar						incipient grain boundary bulging
Quartz						Sweeping extinction, PDFs (up to 4 sets), PFs, and FFs
Chlorite						associated with epidote and magnetite
Biotite						retrogressed into chlorite and magnetite, mildly kinked
Muscovite						associated with magnetite, nice kink bands
Calcite						in fractures and cataclastic zones, rare
plus opaque minerals, accessories (titanite) and apatite						
Mildly brecciated. All quartz grains are shocked. Relictic mineral associated with plagioclase, possible amphibole?						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		108-3_62-63			OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière	
ROCK NAME:		Granite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase						Fractured and kinked, incipient bulging of grain boundaries
K-Feldspar						perthitic, PDFs
Quartz						PDFs, locally toasted, PFs, FFs; shows sweeping extinction; all quartz grains are shocked.
Biotite						retrogressed into chlorite and magnetite
Muscovite						
Calcite						
Chlorite						
Opaque minerals						large grains
Titanite						large grains
Zircons, Apatite						
Cataclastic zone is defined by a sharp margin that is decorated by calcite; fractures are often filled with calcite (See also sketch on sheet.)						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		122-3_44-45			OBSERVER: Ulrich Riller + Ludovic Ferrière	
ROCK NAME:		Granitoid				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase						Sericitized, replaced with epidote; PDFs, occasionally kinked, relic zonation
K-Feldspar						Sweeping extinction, perthitic, some grain boundary migration
Quartz						Strong undulatory extinction, subgrain formation, PDFs. All grains are shocked.
Biotite						Kinked, some biotite transformed to chlorite
Muscovite						
Calcite						
Chlorite						
Opaque minerals						
Titanite						
Zircons, Apatite						
<p>Pervasively brecciated, cataclastic deformation affects grain boundaries; displacement magnitude along cataclastic zone approx. one phenocryst diameter max.; viscous deformation, by crystal-plastic strain proceeds cataclastic deformation; Kinked biotite is pulled apart in cataclasite zone → shock metamorphism prior to cataclastic deformation.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		125-3_61-63			OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae + Ludovic	
ROCK NAME:		Granitoid (more tonalitic)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase						Sericitized, kinked, strongly transformed into clay minerals (?)
K-Feldspar						Incipient recrystallization; perthitic, PFs and PDFs.
Quartz						Abundant PDFs, PFs, FFs, sweeping extinction, incipient bulging; toasted; all quartz are shocked.
Biotite						Kinked, occasionally altered to chlorite.
Muscovite						Kinked
Zircon						
Opaque minerals						Pyrite
Titanite						
Calcite						
Pervasively fractured, numerous cataclastic zones; numerous hairline fractures filled with calcite; Cataclasite zones partially annealed?						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		136-1_52-53			OBSERVER: Axel Wittmann	
ROCK NAME:		Dolerite (with quench zone)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Groundmass (dark green)	60%				Microcrystalline, mafic melt rock	Pervasively altered. Contains phenocrysts of pyroxene that are altered to chlorite and laths of plagioclase (~300 μm) that are zeolitized. Fractures are filled with sparry calcite and some with acicular to platy smectite.
Altered pyroxene phenocrysts (brown)	20%				mm-size euhedral to skeletal	
Granite (light domains at the margin of the thin section)	20%				Uneven contact with melt dike.	Brecciated granite host rock: Quartz with two sets of PDF; feldspar is altered to zeolite / phyllosilicates; mafic mineral phase (pyroxene?) is chloritized.
<p>Dolerite / Contact zone of dolerite dike with host granite. Pervasive alteration. Granite shows weak shock metamorphic overprint and strong fragmentation. Quench zone in dolerite near granite inclusions was cryptocrystalline to glassy with large phenocrysts of pyroxene that are now chloritized. Brown domains are more coarsely crystallized.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		143-3_30-33			OBSERVER: Axel Wittmann	
ROCK NAME:		Dolerite (dike)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Dolerite	95%				Pervasively altered, medium-grained dike rock crystallized 0.5 mm. Plagioclase laths and euhedral, 0.3 mm, pyroxene.	Euhedral, ~ 100 μm opaque phases occur in the groundmass.
Vug-filling secondary minerals	5%				Quartz in vug shows a set of PDFs.	Also, secondary, undeformed calcite that is sparry occurs in vugs and possibly anhydrite based on birefringence.
<p>Dolerite: Pervasively altered, pre-impact dolerite dike with 0.5 mm former plagioclase laths and pyroxene.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	144-3_49-50	OBSERVER: Ulrich Riller + Ludovic Ferrière
ROCK NAME:	Granite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	Pervasively altered to clay minerals, saussuritized --> epidote, mica, kinked and PFs.
K-Feldspar					clouded	Incipient recrystallization.
Quartz						Abundant PDFs, PFs, FFs, and toasted grains; all quartz are shocked.
Biotite/chlorite						Biotite retrogressed into chlorite.
Titanite						
Epidote, Zoisite						
Calcite						interstitial calcite
Opaque minerals (pyrite)						
Apatite						
Zircon						

Plagioclase is clouded, K-feldspar as well; Plagioclase lamellae are kinked near fractures; numerous hairline fractures. (See also sketch on sheet)

Exp. 364 Thin Section Descriptions

THIN SECTION Number		146-3_65-66			OBSERVER: Ulrich Riller + Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Granite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	Zoning evident by clouding, Ab-rich margins are unaltered.
K-Feldspar					clouded	Perthitic
Quartz						Abundant PDFs and PFs, sweeping extinction, and toasted grains; all grains are shocked.
Biotite						Kinked, transformed partly into chlorite.
Apatite						
Calcite					interstitial	
Epidote						
Chlorite						
Opaque minerals (pyrite)						
Titanite						
Plagioclase and K-feldspar are pervasively clouded; The rock isn't that much deformed, but hairline fractures are evident.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	153-3_55-56	OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae + Ludovic
ROCK NAME:	Granite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	Kinked twinning planes, Ab-rich margins are devoid of saussuritization.
K-Feldspar					clouded	perthitic
Quartz					sweeping extinction	Kinked PDFs, PFs, FFs; large quartz grains shows deformation lamellae in addition to PDFs; all quartz are shocked.
Chlorite (Mg-rich)						
Apatite						
Muscovite						
Epidote						
Zircon						
Calcite						

The rock isn't strongly deformed, but does show hairline fractures.

Exp. 364 Thin Section Descriptions

THIN SECTION Number	156-3_64-65	OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière
ROCK NAME:	Granite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	
K-Feldspar					clouded	
Quartz					sweeping extinction	PDFs, PFs, FFs
Biotite					kinked	
Epidote						Shows up in fractures and plagioclase.
Calcite					interstitial	
Muscovite					interstitial	
Opaque minerals (pyrite)						
Chlorite						

Rock isn't much strained, but displays hairline fractures.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		169-3_81-82			OBSERVER: Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Dolerite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Pyroxene phenocrysts						Heavily altered.
Plagioclase phenocrysts						Occasional remnants with lamellar twinning, most plagioclase is saussuritized.
Groundmass: Plagioclase						altered
Groundmass: Interstitial glass						altered
Opaque minerals						Secondary, large crystals.
<p>Rock retains its primary igneous texture despite severe alteration. No quartz.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		191-3_70-72			OBSERVER: Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Contact between Monomict Granitoid Breccia and Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Monomict Breccia (Granitoid) - Quartz						Abundant PDFs and PFs. Polycrystalline quartz occurs in the matrix.
Monomict Breccia (Granitoid) - Plagioclase						
Monomict Breccia (Granitoid) - K-feldspar						Perthitic
Monomict Breccia (Granitoid) - Opaque minerals						
Monomict Breccia (Granitoid) - Muscovite						
Monomict Breccia (Granitoid) - Chlorite						
Suevite - Quartz clasts						PDFs
Suevite - K-feldspar clasts						
Suevite - Plagioclase clasts						
Suevite - Muscovite clasts						Kink bands
Suevite - Dolerite clasts						Porphyritic texture with plagioclase phenocryst pseudomorphs and laths in the matrix.
Suevite - Granitoid clasts						
Suevite - Calcite clasts						
Suevite - Melt Shards						Can be sub-angular and contain clasts with granitic material, and recrystallized silica melt.
Suevite - Groundmass						Clastic, groundmass generally composed of granitic material (occasionally with chlorite alteration).
Monomict breccia is thoroughly cataclastic.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	199-2_115-17_a & b	OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae
ROCK NAME:	Granitoid	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded, kinked	strongly sericitized
K-feldspar					clouded	perthitic, PFs
Quartz						PDFs, PFs
Muscovite						
Calcite						grown along fractures
Chlorite						
Opaque minerals						

Pervasively fractured and brecciated, some fractures are filled with granoblastic calcite and seem to overprint cataclasite zones. Other fractures, notably in thin section "a" are filled with white mica. There is a thin zone of ultracataclasite that grades into breccia at its margins.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		220-3_50-56			OBSERVER: Ulrich Riller + Ludovic Ferrière	
ROCK NAME:		Granite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					cloudy, kinked twin planes	An-rich cores are saussuritized.
K-feldspar					cloudy, some bulging of grain bound PDFs	
Quartz						abundant PDFs; toasted grains.
Chlorite						retrogressed from biotite and associated with magnetite and muscovite.
Muscovite						
Titanite						
Opaque minerals						
<p>The rock is hardly strained, neither pre- nor post-impact deformation is apparent. There is some symplectitic intergrowth between Ab-rich margins of plagioclase and K-feldspar (see also sketch on sheet.)</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	221-3_19-24	OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière
ROCK NAME:	Granitoid	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					kinked twin planes	PDFs, pervasively sericitized.
K-feldspar						some PDF
Quartz						pervasive presence of PDFs; quartz contains a large number of irregular fractures.
Muscovite						associated with apatite
Titanite and epidote-group minerals						
Apatite						

Rock is not strained much (some hairline fractures are present). Large muscovite grains do not appear to be kinked and overgrows plagioclase. Muscovite grew also in fractures of slightly pulled apart plagioclase fragments. In places, prismatic apatite (?) fragments are pulled apart. White mica and magnetite is also evident in zones between quartz and feldspar grains.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		221-3_23-24			OBSERVER: Ulrich Riller + Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Mafic dike (dolerite)				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Phenocrysts						
Plagioclase					zoned and mostly pristine (unaltered Albite-rich judging by the spacing of twin planes and straight extinction)	
Amphibole (pyroxene ghosts)						retrogressed
Tiny spherical minerals						high interference colours, green pleochroism: possibly pyroxene (?)
aphanitic matrix						minerals unknown, likely plagioclase
calcite						
opaque minerals						
Fractures are filled with serpentine. Strong shape-preferred orientation (SPO) of plagioclase phenocrysts and matrix minerals. No PDFs detected in plagioclase phenocrysts. No quartz.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	234-2_139-141			OBSERVER: Axel Wittmann + Ludovic Ferrière		
ROCK NAME:	Felsic dike					
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Melt Rock	95%				Acicular, 100 um feldspar (?) crystals occur in bunches in an ophitic texture that has an interstitial mafic phase that was altered to zoisite (with characteristic blue interference colors). The rock is pervasively altered. Apatite also occurs as	Euhedral, ~ 100 µm opaque phases occur in the groundmass; the melt rock is composed of ~55% feldspar (?), 20 % mafic phase (altered pyroxene ?) and 20 % cloudy, poorly crystallized carbonate that seems to replace an original component; ca. 5 % of the rock are diffuse opaque phases ~20 µm in size.
Vug-filling SiO2/quartz	5%		0.5 cm		Quartz in up to 0.5 cm vugs is yellow and exhibits PDFs	Also, secondary, undeformed calcite that is sparry occurs in vugs and possibly anhydrite based on birefringence. Quartz contains 2-3 sets of PDFs; Toasted quartz.
Melt rock-carbonate	20%				Calcite occurs fairly common as a cloudy, micritic type dispersed as ~20 um clusters throughout the melt rock groundmass and as a	
Melt rock-mafic phase	20%				Probably pyroxene, sometimes with hexahedral rhombs and as	
Melt rock-opaque phase	5%				Dispersed ~20 um in size, diffuse to euhedral square shapes.	
Melt rock-feldspar (?)	55%				Zeolitized laths. Also as pervasively altered groundmass	
Apatite						
Relative homogenous texture of brownish-orange, fine-grained, melt rock that is pervasively altered; pre-impact dike hosted by granite.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		234-3_44-47 SAME AS 234-2_139-141			OBSERVER: Axel Wittmann + Ludovic Ferrière	
ROCK NAME:		Felsic Dike				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
See description of thin section 234-3_44-47 - exact same.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	246-3_77-78	OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière
ROCK NAME:	Felsic dike (aplite) with tonalitic composition with plagioclase phenocrysts/dacite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase (phenocrysts)					clouded, forms phenocrysts with kinked twin planes	Zoning is well visible by the level of saussuritization. PDFs.
K-feldspar					clouded	PDFs in perthite; PFs
Quartz						abundant PDFs, PFs, and FFs; almost all quartz are shocked.
Titanite & Zircon						
Biotite					kinked	
Epidote-Zoisite group minerals						
Magnetite						
Apatite						
Opaque minerals (pyrite)						

The rock is largely unstrained. Feather features (or structures) visible in plagioclase (in the center of the slide).

Exp. 364 Thin Section Descriptions

THIN SECTION Number	255-3_54-56	OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae + Ludovic
ROCK NAME:	Granitoid	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	shows PDFs, occasionally myrmnetitic
K-feldspar					clouded	some PDF
Quartz						Shows deformation lamellae; abundant PDFs, PFs, FFs.
Biotite						Retrogressed to chlorite, mildly kinked.
Epidote-group minerals						in hairline fractures
Titanite						
Opaque minerals (magnetite, pyrite)						
Chlorite						

Rock shows little strain (some hairline fractures are present).

Exp. 364 Thin Section Descriptions

THIN SECTION Number	256-3_60-64	OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae + Ludovic
ROCK NAME:	Granite (with fault gouge)	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	lobate grain boundaries, kinked twin planes
K-feldspar					clouded	perthitic
Quartz						Deformation lamellae and PDFs, serrated grain boundaries.
Muscovite					kink bands	
Epidote						
Opaque minerals						
Apatite						

Highly fractured and brecciated rock; fractures are filled (sealed) with sericite; 0.5 cm thick fault zone showing a zonation from fractured host rock via brecciated margin and a core deformation zone showing fluidal texture and SPO of fragments; high relief, granoblastic minerals in the brecciated margin associated with calcite. (See also sketch on sheet),

Exp. 364 Thin Section Descriptions

THIN SECTION Number	265-3_55-57	OBSERVER: Ulrich Riller + Michael Poelchau + Auriol Rae + Ludovic
ROCK NAME:	Granite with melt schlieren [breccia with flow-banded zone]	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	contains muscovite
K-feldspar						perthitic
Quartz						Numerous PDFs and PFs.
Biotite						kinked
Melt (/glass)					Schlieren, partially devitrified (?)	Brown opaques within the breccia, can be mixed with breccia fragments.
Epidote						
Muscovite						
Opaque minerals						

Pervasively brecciated granite, fragments are rounded to angular; some dilation fractures are filled with epidote; the schlieren-banded zone, e.g., flow-textured zone, contains breccia fragments and minute schlieren intrude the breccia. The breccia fragment margins are rounded, lenticular, resorbed; fragments are shocked; interface between breccia fragments breccia zone margins and fluid-textured zone is well-defined. (See also sketch on sheet.)

Exp. 364 Thin Section Descriptions

THIN SECTION Number		267-3_36-38			OBSERVER: Ulrich Riller + Michael Poelchau + Ludovic Ferrière	
ROCK NAME:		Granite breccia (with fluid-textured vein)-Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					weakly clouded	
K-feldspar					weakly clouded	
Quartz						with PDFs and PFs.
Biotite					kinked/smeared	
Muscovite						
Opaque minerals (pyrite)						
Different types of melt clasts/shards						Largely altered - replacement by clay minerals; preserved flow texture
Mafic clast						
Calcite						
<p>Pervasively brecciated granitoid rock; breccia is truncated by a rather large vein (on thin section scale) filled with calcite; breccia contains brown-colored fluidally-textured pods, which, in turn, host breccia fragments.</p>						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		268-1_31-33			OBSERVER: Axel Wittmann + Ludovic Ferrière	
ROCK NAME:		Cryptocrystalline, clast-rich, impact melt rock dike or polymict breccia dike.				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Groundmass	80%				Aphanitic, cryptocrystalline	Pervasively altered. Contains abundant clasts that are variably digested. Some quartz clasts have several sets of decorated PDFs. Dolerite occurs as a common clast component up to several mm in diameter. Sparry
Cataclastic Quartz + variety of other clasts and melts shards	20%					Some quartz fragments appear to be monomict breccias. Several euhedral zircon grains are associated with quartz fragments. A ~0.3 mm trapezoid, partly assimilated fragment of an aphanitic melt rock with fluidal texture
Fine-grained, clast-laden, green impact melt rock. Distinctly polymict.						

Exp. 364 Thin Section Descriptions

THIN SECTION Number	268-3_53-57	OBSERVER: Ulrich Riller + Ludovic Ferrière
ROCK NAME:	Granite (breccia)	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Plagioclase					clouded	kinked twin planes
K-feldspar					clouded	some PDFs
Quartz						PDFs, PFs, and FFs; Numerous quartz show irregular fractures.
Calcite						
Zircon & Apatite						

Pervasively brecciated and fractured (on the grain scale).

Exp. 364 Thin Section Descriptions

THIN SECTION Number		278-3_66-72			OBSERVER: Naotaka Tomioka + Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Monomict granitoid breccia & Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Monomict breccia: Quartz						PDFs, PFs, undulatory extinction
Plagioclase					Dusty	PDFs
K-feldspar						Partially altered
Biotite						highly deformed, kink bands
Suevite: Melt shards					Different types, most of them altered to clay minerals	
Opaque minerals						
quartz						often polycrystalline
plagioclase						
chlorite						rare, associated with opaque rich areas
other accessory minerals						

Exp. 364 Thin Section Descriptions

THIN SECTION Number		279-1_00-06			OBSERVER: Naotaka Tomioka + Auriol Rae + Ludovic Ferrière	
ROCK NAME:		Suevite				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
quartz (mineral fragments)						PDFs, undulatory extinction, abundant vesicles
plagioclase (mineral fragments)						undulatory extinction, PDFs
biotite (mineral fragments)						curved cleavages, kink bands
opaque minerals (mineral fragments)						
K-feldspar (mineral fragments)						with PDFs
different types of rock fragments, including:						
granitoid						in several varieties, some foliated
mafic clasts						
different types of melt clasts						
Groundmass					fine-grained, clastic	

Exp. 364 Thin Section Descriptions

THIN SECTION Number	280-3_66-68	OBSERVER: Ludovic Ferrière + Naotaka Tomioka + Auriol Rae
ROCK NAME:	Suevite	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Groundmass					fine-grained	mainly composed of quartz, K-feldspar, plagioclase, and micas
Melt shards (schlieren)					two main different types: -black -brown	different types with different colors, vesiculated, with flow texture and non-digested rock and mineral clasts of different lithologies.
Lithic mineral clasts: Quartz						with PDFs
Plagioclase						
K-feldspar					cloudy in appearance	PFs
Opaque minerals						secondary?
Rock clasts: Granitoids						
Mafic rocks						
Schists						

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Exp. 364 Thin Section Descriptions

THIN SECTION Number	290-1_00-03	OBSERVER: Ludovic Ferrière + Naotaka Tomioka + Auriol Rae
ROCK NAME:	Suevite (with almost half of the section being a large clast of schist)	

PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
Groundmass					fine-grained	mainly composed of quartz, K-feldspar, plagioclase, and micas
Melt shards (schlieren)					two main different types: -black -brown	different types with different colors, vesiculated, with flow texture and non-digested rock and mineral clasts of different lithologies.
Lithic mineral clasts: Quartz						with PDFs
Plagioclase						
K-feldspar					cloudy in appearance	PFs
Opaque minerals						secondary?
Rock clasts: Schists						
Granitoids						
Mafic rocks						

Same as thin section 280-3_66-68.

Exp. 364 Thin Section Descriptions

THIN SECTION Number		292-3_66-68			OBSERVER: Auriol Rae + Michael Poelchau	
ROCK NAME:		Highly sheared melt clast				
PRINCIPAL COMPONENTS	MODAL PERCENT	SIZE (mm)			MORPHOLOGY/TEXTURE	COMMENTS
		min.	max.	av.		
opaques (mafic component)						
feldspar (plagioclase?) (mafic component)						heavily altered
quartz (clasts)						often polycrystalline, rare PDFs
plagioclase (clasts)						heavily altered
K-feldspar (clasts)						heavily altered
opaque minerals (clasts)						
<p>Serpentinized veins. Lithic clasts/xenoliths are flow-aligned. Lithic clasts/xenoliths lack diffuse margins like impact melt rock formed further up in the core. Strong foliation, variation between mafics-dominated layers and more felsic layers.</p>						