

LGP Baseline Measurements 09/10 Season

General Site Description

Site Name: Pyramid Trough



Photo 1: Terrestrial ponds and Trough River in Pyramid Trough. The end of proglacial Trough Lake is just visible on far right.

Geographical coordinates <i>(for Cleopatra pond, the largest pond feature).</i>	Latitude and Longitude S78 17.471, E163 26.908	Note if from GPS or Not GPS GPS.
Elevation:	84 m asl	GPS
Slope:	Degrees: <5° on valley floor	Estimated
Date (s) visited: 12 Jan 2010		
Aspect: Valley trending NS		
Samples taken? Yes		
Photos taken? Yes		
Aerial Photos available? Yes		
Notes taken by: Jenny Webster-Brown (University of Canterbury)		

Soil Parameters

Geomorphological characteristics	<input type="checkbox"/> Pro-Glacial <input type="checkbox"/> Nival - Chionophilous <input type="checkbox"/> Periglacial <input type="checkbox"/> Fluvial <input type="checkbox"/> Coastal <input type="checkbox"/> Fell-Field	<input type="checkbox"/> Slope <input type="checkbox"/> Plateau <input type="checkbox"/> Valley <input type="checkbox"/> Landslide <input type="checkbox"/> Scree slope <input type="checkbox"/> Rock wall
Rock Lithology	<input type="checkbox"/> Siliceous rock <input type="checkbox"/> Calcareous rock	Rock type: Basalt, scoria, basement gneiss(?) and intrusive.
Soil Typology	<input type="checkbox"/> Soil Absence <input type="checkbox"/> Soil Presence	<input type="checkbox"/> Mineral soil <input type="checkbox"/> Organic soil
Surface Lithology	<input type="checkbox"/> Outcropping Rock <input type="checkbox"/> Loose Material <input type="checkbox"/> Glacial	

	<input type="checkbox"/> Fluvial <input type="checkbox"/> Eolic <input type="checkbox"/> Coastal <input type="checkbox"/> Scree Slope, Debris
Surface Texture	10 % Blocks ($\varnothing > 25\text{cm}$) 30 % Pebbles ($5\text{cm} < \varnothing < 25\text{cm}$) 50 % Gravel ($0.2\text{cm} < \varnothing < 5\text{cm}$) 10 % Sand and finer material ($\varnothing < 0.2\text{cm}$)

Vegetation

Plants and Lichens:	Rare black and yellow lichens seen, gold/green moss on wet delta area near Cleopatra Pond (Bryum?)
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Fauna

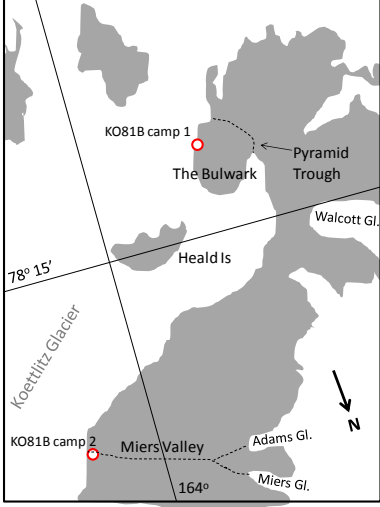
Mammals	None seen
Birds	None seen
Invertebrates	None seen

Glacial

Ablation/accumulation	N/A
Ice temperature	N/A
Snow pit measurements	N/A

Aquatic Non-Marine Systems

Types of water bodies: Terrestrial ponds, some (fresh) linked by Trough River, others isolated and more saline.	Photo 2. Saline pond in upper reaches of Pyramid Trough, showing remnant ice plugs in base of pond. 
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<p>Sketch/map of water bodies and immediate catchment. Include orientation.</p> <p>Pyramid Trough in relation to KO81B camp and The Bulwark</p>	
<p>Size and depth: Ponds range from <10m diam to >100m diam.</p>	<p>Estimate or actual: measured</p>
<p>Inflows and outflows (for non running systems): Trough River links features in the base of valley. Other terrestrial ponds fed by (former) snowbank or subsurface (permafrost) melt.</p>	
<p>Duration and spatial distribution of free water: Semi permanent (>5-10 yrs?) ponds.</p>	
<p>Evidence of water level variation? Yes - evidence includes discoloured rock, salt precipitation and dried cyanobacterial mat on soil surface around terrestrial ponds and glacier margin ponds</p>	
<p>Isolated habitat or part of a connected network? Both (see above photos/comments)</p>	
<p>Proximity to other aquatic systems: Spacing between ponds: 50m to >300m.</p>	
<p>Any sign of salt or vegetation accumulation around margins? Yes (see above)</p>	
<p>Range of levels over season (peg or otherwise reference the margin): Not measured.</p>	
<p>Water sources: Isolated Terrestrial ponds in moraine</p>	<ul style="list-style-type: none"> - 50?% Snow - % Glacier - 50?% Non-glacial Ice - % Other
<p>Water sources: Ponds in base of valley</p>	<ul style="list-style-type: none"> - 0% Snow - 80% Glacier ice via Trough River - 20?% Non-glacial Ice - % Other
<p>Ice cover:</p>	<ul style="list-style-type: none"> - Fresh ponds in base of Valley typically had partial ice cover, with open moat - Other more saline ponds, typically no or little ice cover. - Thickness: 1-5?m in centre, <5cm on moat - Transparency: permanent ice = opaque with some snow cover, moat ice transparent.)
<p>Water properties. (to be recorded at intervals over the season)</p>	<ul style="list-style-type: none"> - Clarity: Close to 100% (estimated) - Colour: None - Foams : Seen in ponds/streams with cyano mats - Conductivity (measured): 43 - 8300 uS/cm - Temperature (measured): 6.0 - 9.3°C

Bed characteristics	<ul style="list-style-type: none"> - Substrate (%) <ul style="list-style-type: none"> ○ Cobbles 50% ○ Gravel 30% ○ Sand 20% ○ Silt 0% - Vegetated (% cover) Variable 0 - 100% <ul style="list-style-type: none"> ○ cyanobacterial mats <ul style="list-style-type: none"> ▪ Colour – orange, green/black, pink, brown, purple, ruby ▪ Thickness – 0.5mm – 30mm (thick) ▪ Gross morphology (flat, pinnacle, globular, discoid) ○ Encrusting: yes - purple mat ○ Mosses - Yes - green/gold ○ green algae - Yes - trailing
Others	Animal observation: Rotifers observed, good habitat also for nematodes & tardigrades but not looked for.
Sample collection and preservation	Samples of water, sediment, salt and mats were collected as part of our research. Chemical and biological analysis is being undertaken

Aquatic Marine Systems N/A

Environmental (AWS): Bratina Is AWS is the closest.