

# LGP Baseline Measurements 09/10 Season

## General Site Description

Site Name: Diamond Glacier



Photo 1: Glacier margin pond on S edge of Diamond Glacier

Geographical coordinates <i>(for camp on S side of glacier)</i>	Latitude and Longitude S79 51.092 E159 3.904	Note if from GPS or Not GPS GPS.
Elevation:	495 m asl	GPS
Slope:	Degrees: Variable	Estimated
Date (s) visited: 24-31 Dec 2009		
Aspect: Glacier trending ENE, into Brown Hills Saddle		
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"/> <b>Periglacial</b> <input type="checkbox"/> Fluvial <input type="checkbox"/> Coastal <input type="checkbox"/> Fell-Field	<input type="checkbox"/> Slope <input type="checkbox"/> Plateau <input type="checkbox"/> <b>Valley</b> <input type="checkbox"/> Landslide <input type="checkbox"/> <b>Scree slope</b> <input type="checkbox"/> <b>Rock wall</b>
Rock Lithology	<input type="checkbox"/> <b>Siliceous rock</b> <input type="checkbox"/> Calcareous rock	Rock type: Granodiorite
Soil Typology	<input type="checkbox"/> Soil Absence <input type="checkbox"/> <b>Soil Presence</b>	<input type="checkbox"/> <b>Mineral soil</b> <input type="checkbox"/> Organic soil
Surface Lithology	<input type="checkbox"/> <b>Outcropping Rock</b> (rare)	

	<input type="checkbox"/> <b>Loose Material</b> <input type="checkbox"/> <b>Glacial</b> <input type="checkbox"/> Fluvial <input type="checkbox"/> Eolic <input type="checkbox"/> Coastal <input type="checkbox"/> <b>Scree Slope, Debris</b>
Surface Texture	20 % Blocks ( $\varnothing > 25\text{cm}$ ) 30 % Pebbles ( $5\text{cm} < \varnothing < 25\text{cm}$ ) 30% Gravel ( $0.2\text{cm} < \varnothing < 5\text{cm}$ ) 20 % Sand and finer material ( $\varnothing < 0.2\text{cm}$ )

### **Vegetation**

Plants and Lichens:	Not observed
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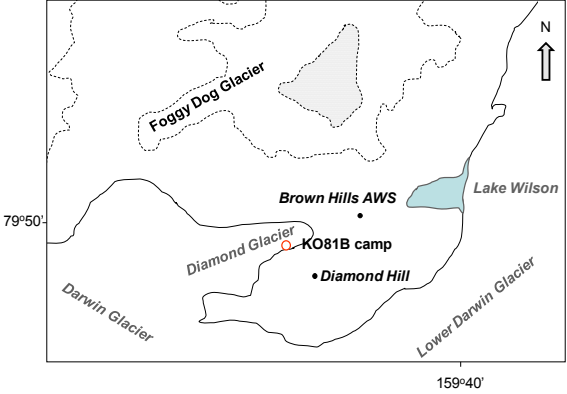
### **Fauna**

Mammals	Just us
Birds	None seen
Invertebrates	None seen

### **Glacial**

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

## Aquatic Non-Marine Systems

<p>Types of water bodies:</p> <p>Terrestrial ponds in Brown Hills saddle, cryoconites on the glacier surface and glacial margin ponds on N and S edges of glacier (see Photo 1)</p>	<p><b>Photo 2.</b> Glacier surface with cryoconites in foreground, and marginal pond behind.</p> 
<p>Sketch/map of water body and immediate catchment. Include orientation.</p> <p>Water bodies on all borders of glacier, cryoconites occurring in patches over glacier surface. Terrestrial ponds between glacier tip and Brown Hills Saddle AWS.</p>	
<p>Size and depth: Cryoconites &lt;1m diameter, glacier margin ponds up to 30x200m.</p>	<p>Estimate or actual: measured</p>
<p>Inflows and outflows (for non running systems): Glacier fed, but no large in or outflows observed.</p>	
<p>Duration and spatial distribution of free water: Semi permanent (?) on glacier margin. Terrestrial ponds may be shorter lived (&lt;5 – 10 yrs?), smaller ponds may even be seasonal. Cryoconite age unknown.</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? Terrestrial ponds isolated, glacial ponds connected via glacier or glacier edge flows.</p>	
<p>Proximity to other aquatic systems: Spacing between ponds 500m to 2km (or more)</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: Terrestrial ponds</p>	<ul style="list-style-type: none"> <li>- 100% Snow</li> <li>- % Glacier</li> <li>- % Non-glacial Ice</li> <li>- % Other</li> </ul>

Water sources: Glacial margin ponds and cyroconites ponds	<ul style="list-style-type: none"> <li>- 0% Snow</li> <li>- 100% Glacier</li> <li>- % Non-glacial Ice</li> <li>- % Other</li> </ul>
Ice cover: glacial margin ponds (to be recorded at intervals over the season)	<ul style="list-style-type: none"> <li>- Little ice cover in terrestrial ponds</li> <li>- Glacier margin ponds: permanent ice with thin ice or no cover on moat (typically 80% ice cover). Cryconites, ice covered 100%.</li> <li>- Thickness: 1-2m in centre, 12-20cm on moat or cyroconites.</li> <li>- Transparency: permanent ice = opaque with some snow cover, moat ice = transparent</li> </ul>
Water properties. (to be recorded at intervals over the season)	<ul style="list-style-type: none"> <li>- Clarity: Close to 100% (estimated)</li> <li>- Colour: None</li> <li>- Foams : None seen</li> <li>- Conductivity (measured): 30-170 uS/cm</li> <li>- Temperature (measured): 0.2 – 3.3°C</li> </ul>
Bed characteristics	<ul style="list-style-type: none"> <li>- Substrate (%) <ul style="list-style-type: none"> <li>o Cobbles 50%</li> <li>o Gravel 30%</li> <li>o Sand 20%</li> <li>o Silt 0%</li> </ul> </li> <li>- Vegetated (% cover) Variable 0 - 100% <ul style="list-style-type: none"> <li>o <b>cyanobacterial mats</b> <ul style="list-style-type: none"> <li>▪ Colour – pink and brown</li> <li>▪ Thickness – 2mm (thin)</li> <li>▪ Gross morphology (flakey)</li> </ul> </li> <li>o Encrusting: No</li> <li>o Mosses - None seen</li> <li>o green algae - None seen</li> </ul> </li> </ul>
Others	Animal observations (none observed – but detailed examination not undertaken)
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):**      Brown Hills AWS the most relevant