Meridianiite

\[ \text{Mg(SO}_4\text{)}\cdot11\text{H}_2\text{O} \]

**Crystal Data:** Triclinic.  \( \text{Point Group: } \bar{1} \)  
As platy crystals with tapered edges to 20 \( \mu \)m.

**Physical Properties:**  
- Fracture: n.d.  
- Hardness = n.d.  
- D(meas.) = n.d.  
- D(calc.) = 1.507  
- Stable < 2 °C; above 2 °C, it melts incongruently to a slurry of epsomite and water.

**Optical Properties:**  
- Transparent to translucent.  
- Color: Colorless.  
- Luster: n.d.

**Cell Data:**  
- \( \text{Space Group: } P \bar{1} \)  
- \( a = 6.7459 \text{ Å}, b = 6.8173 \text{ Å}, c = 17.280 \text{ Å} \)  
- \( \alpha = 88.137^\circ, \beta = 89.481^\circ, \gamma = 62.719^\circ \)  
- \( Z = 2 \)

**X-ray Powder Pattern:** Basque claims, near Ashcroft, central British Columbia, Canada.  
Diffractogram published in reference (1).

**Chemistry:** Micro-Raman spectroscopy confirms composition of natural material compared to synthetic.

**Occurrence:**  
In a pocket near the surface of a frozen pond that allowed evaporation, concentration of dissolved matter, and crystallization at temperatures well below the freezing point of water.  
In sea ice inclusions and Antarctic ice.

**Association:** Ice.

**Distribution:**  
From the Basque claims, near Ashcroft, central British Columbia, Canada.  
Found in inclusions in sea ice from Saroma Lake, northeastern shore of Hokkaido Island, ~30 km from Abashiri City, Japan and at Dome Fuji Station, East Antarctica at the 3810 m asl summit of the East Dronning Maud Land Plateau.

**Name:** For the locality where the Mars Exploration Rover (MER) Opportunity observed crystal molds in sedimentary rock that may be caused by minerals that have since dehydrated or dissolved.

**Type Material:** Canadian Museum of Nature, Ottawa, Ontario, Canada.

**References:**  
   Amer. Mineral., 92, 1757-1759.  
   Geology, 34, 957-960.