

Table 25 Snow (Grain Size)

	DATA OPTION 1: Landsat ETM	DATA OPTION 2: MODIS
<i>Spatial Dimensions</i>		
Area to cover	185km x 185km per scene	2500 km swath width
Mapping unit	15m panchromatic 30m multi-spectral	250 m (bands 1-2) 500 m (bands 3-7) 1000 m (bands 8-36)
Positional accuracy	Dependent on geo-referencing process	Dependent on geo-referencing process
<i>Temporal Dimensions</i>		
When	Approx 9.45am	Approx 10.30am (Terra) and 1.30pm (Aqua)
How often	Every 16 days	Daily
Variable to map	Snow grain size	Snow grain size
Environmental Restrictions	Cloud cover Grain size	Cloud cover
Processing technique (Output)	Image classification or feature detection to identify snow pixels, then, snow grain size modelling	Image classification or feature detection to identify snow pixels, then, snow grain size modelling
Resources – Hardware and Software	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)	PC Image processing software GIS with image classification module (e.g. ARCGIS Image Analyst)
Resource – Personnel	Trained in image classification Experience with Landsat data Knowledge of area to be mapped	Trained in image classification Experience with MODIS data Knowledge of area to be mapped
References: Note these are some example references	Dozier et al. (1989) Painter et al. (2003)	Jin et al. (2008)

Painter, T. H., Dozier, J., Roberts, D. A., Davis, R. E. and Green, R. O. (2003). "Retrieval of subpixel snow-covered area and grain size from imaging spectrometer data." Remote Sensing of Environment, 85(1), 64-77.

Dozier, J. (1989). "Spectral signature of alpine snow cover from the Landsat Thematic Mapper." Remote Sensing of Environment, 28, 9-22.

Jin, Z., Charlock, T., Yang, P., Xie, Y. and Miller, W. (2008). "Snow optical properties for different particle shapes with application to snow grain size retrieval and MODIS/CERES radiance comparison over Antarctica." Remote Sensing of Environment, 112(9), 3563-3581.