

Snow Pillows Help Predict River Flows

Managers of Cowichan River water flows now have two helpful tools to measure how much water is stored in the snow in the mountains around Lake Cowichan. “Snow Pillows” have been established on Heather Mountain (2015) and at the headwaters of Cottonwood Creek, called “Jump Creek” (1995). The following description of how these devices work has kindly been provided by David Thompson, Sr. Snow Survey Technician (retired)

A snow pillow is a sensing device that is placed on the ground to take continuous measurements of how much water is stored in the snow in a particular location throughout the snow season. It is basically a reinforced rubber watertight bladder, circular in shape, 3 to 4 metres in diameter and 15 to 20 centimetres in height when filled with an antifreeze fluid. The pressure, or weight, of the water in the snow on top of the pillow displaces the fluid into a standpipe (manometer) connected to the pillow. This displacement can then be measured as “snow water equivalent”.

The rise and fall of the fluid is detected by a device called a “shaft encoder” which measures the change in millimetres and converts it to electronic or digital units which are stored in data collection platform (DCP). This device then transmits this data to a satellite which then relays the signal back to an earth based computer which collates the data and makes it available to users (e.g. River Forecasters) in near-real-time.

In addition to the snow pillow other sensors are installed at the sites and provide such data as snow depth, precipitation and temperature. This data can be observed or retrieved using the website below.

More Info: For a more detailed understanding of the snow pillow and the data gathering system and its utility look up Ministry of Forests, Lands and Natural Resource Operations – River Forecast Centre or go the following website and follow the links: <http://bcrcfc.env.gov.bc.ca>