

## Almut Iken



Almut Iken is one of the pioneers of glaciology. She was born in Germany in 1933. After having obtained a degree in physics at the University Heidelberg in 1959, she worked as a senior high school lecturer for several years. In 1970 she pursued further studies at McGill University in Montreal (Prof. F. Müller) and embarked on research into the linkage between glacier motion and basal water pressure variations as part of her PhD thesis, in which she demonstrated for the first time that velocity variations at White Glacier (Axel Heiberg Island, Canadian Arctic) were linked to basal water pressure variations. Based on field experiments conducted at Unteraargletscher and Findelengletscher (Swiss Alps) she showed that surface velocity variations correlate with subglacial water pressures, which is now known as a pervasive feature of alpine valley glaciers.

In the last years of her career, Almut Iken focused her research on the dynamics of the fast-flowing ice stream Jakobshavn Isbræ in Greenland. Several holes were drilled using a newly developed hot water system, to a depth of 1,600 m. A substantial amount of temperate ice was found at the bed of the ice stream, suggesting that internal deformation made a large contribution to the ice stream motion. Almut Iken suggested that the kinematic funneling of ice into a depression with a soft bed was a plausible mechanism for explaining the presence of ice streams.

Almut Iken's scientific work has been guided by an extremely methodological approach, and always with an open mind towards new methods. She was one of the first researchers to use finite element methods with a free boundary to simulate glacier flow and to seriously consider the role of water in basal motion. Almut Iken was one of the main driving forces behind the significant advances in this field for over twenty years. The lasting impact of Almut Iken's work can be appreciated in the light of new studies on subglacial drainage system evolution that are currently being applied to the margins of the Greenland Ice Sheet.