

Institut de Mécanique des Fluides

Amphithéâtre Nougaro (Entrée A) - 2 Allée du Pr Camille Soula, Toulouse

Mardi 15 Octobre - 10 h 30

Laurent Hascoet

INRIA, Sophia-Antipolis, Nice.

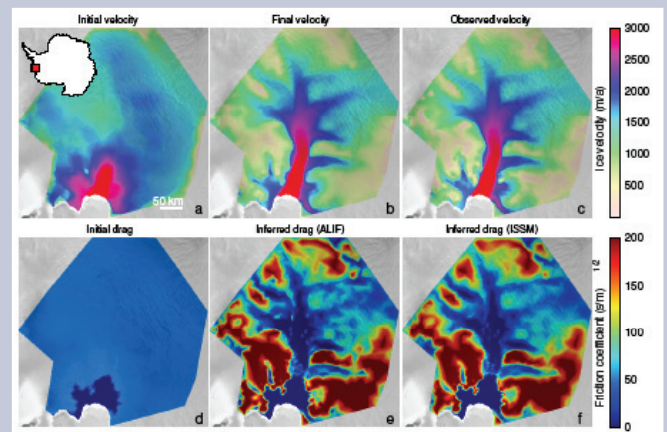
Strategies for Automatic Differentiation.

Algorithmic Differentiation (AD) is a family of program transformation techniques aimed at computing derivatives. Given a program P that computes a mathematical function F , an AD tool builds a code P' that computes some derivatives of F .

- We will describe the most frequently needed sorts of derivatives, with a particular focus on gradients (also known as adjoints).
- We will describe the most popular strategies for AD (the AD models) and the corresponding sorts of AD tools.
- We will discuss the present limitations of AD and the current research to lift them.

Automatic Differentiation is mainly used to solve optimization, inverse problems as in data assimilation and flow control where gradients or more generally sensitivities are required.

The recent developments of AI will push forward the application of the AD.



Un exemple de problème inverse par DA
(le glacier Pine Island)

contact : sig_communication@imft.fr

Institut de Mécanique des Fluides - 2, Allée du Pr Camille Soula, 31400 Toulouse.