Advanced Elmer/Ice Workshop

22 – 24 Novembre 2017

Introduction

Olivier GAGLIARDINI (IGE, France)
Fabien GILLET-CHAULET (IGE, France)
Thomas ZWINGER (CSC, Finland)

Program - Day 1

Wednesday, 22 Nov 2017 – bat Galilée

8h30-9h00 - Arrival of the participants
9h00-9h30 - Introduction words + round-table presentation (Olivier)
9h30-10h00 - Lower-order Stokes model (Fabien)
10h00-10h30 - Thermal regime of glacier (Adrien)
10h30-11h00 - Coffee break
11h00-11h30 - Calving models in Elmer (Thomas)

12h00 Lunch (on your own expense)

13h30-14h00 - Inverse methods for ice flow (Fabien)
14h00-14h30 - Inverse methods for bed geometry (Johannes)
14h30-15h00 - Parallel computing (Thomas)
15h00-15h30 Coffee break
16h00-16h30 - Hydrology and friction (Olivier)
16h30-17h00 - Marine ice sheet/glacier and grounding line dynamics (Olivier)

19h30 Dinner at La ferme à Dédé (on you own expense)

Program - Day 2

Thursday, 23 Nov 2017 – bat Galilée

9h00-10h00 - Ocean and ice coupling (Rupert & Nico)
10h00-10h30 - Programming your own solver/user functions (Thomas)
10h30-11h00 Coffee break
11h00-11h30 - Pre-processing (geometry, meshing) and Post-processing (Thomas)
11h30-12h00 - Development of a LevelSet approach to model complex biphasic media (Kevin)

12h00-13h30 Lunch (on your own expense)

13h30-14h00 – Remeshing (Fabien)
14h00-14h30 - Contributing code to Elmer(/Ice), Defensive programming (Rupert)
14h30-15h00 - Rate and state friction law for hard bed glaciers (Kjetil)
15h00-15h30 Coffee break
15h30-16h00 - 3D Modelling of ice rises in East Antarctica (Clemens)
16h00-16h30 - Ice flow modelling to constrain SMB and ice discharge in Patagonia (Gabriela)
16h30-17h00 – Modelling permafrost (Denis)

19h30 Dinner at Chez Marius (on your own expense)

Program - Day 3

Friday, 24 Nov 2017 – IGE glaciology

9h00-12h00 Hands on to participants problems

12h00-13h30 Lunch (on you own expense)

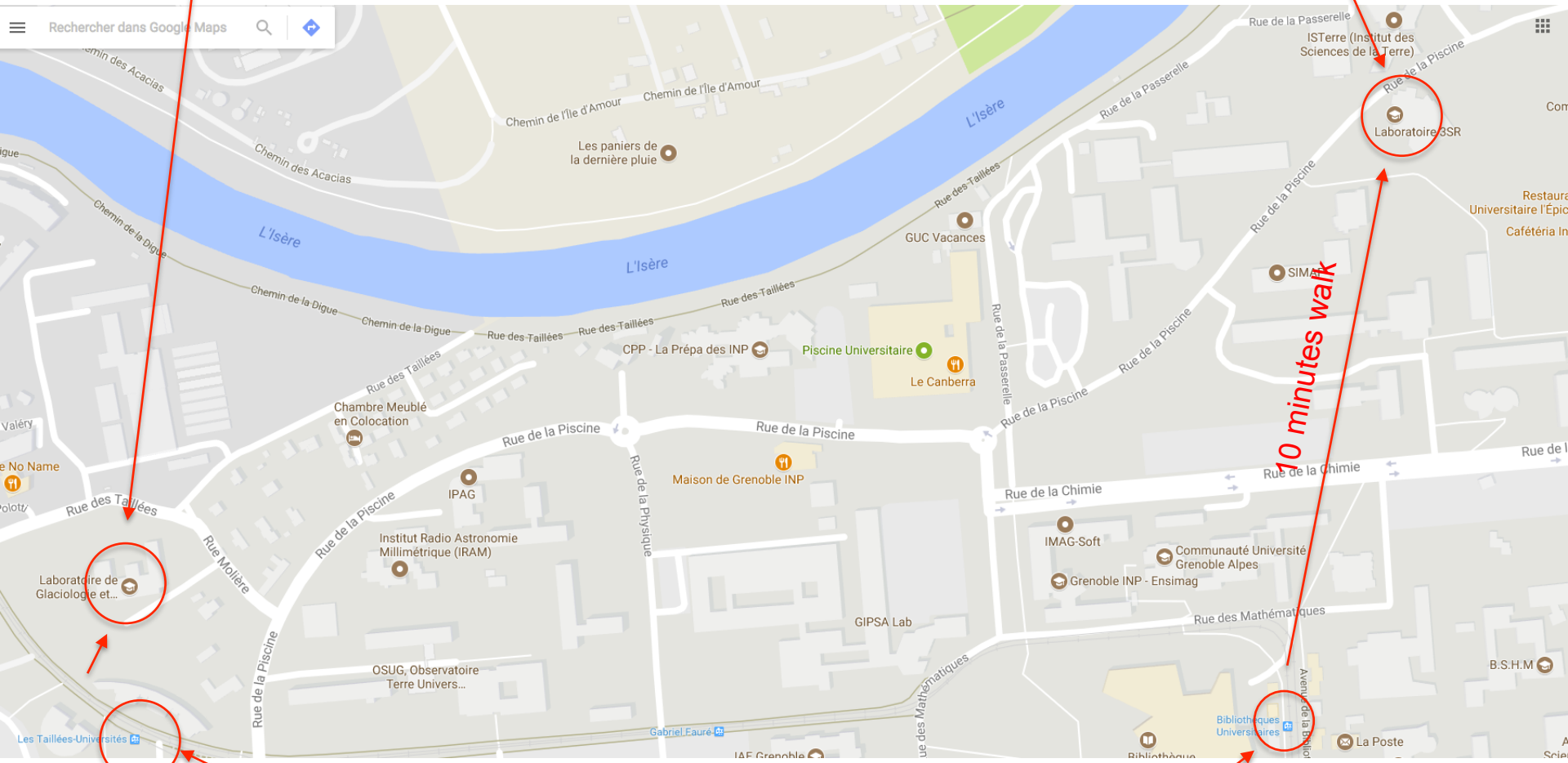
13h30-15h30 Hands on to participants problems

15h30-16h30 Discussion about future plans, future developments, form of this workshop, etc...

16h30 End of the workshop

3rd day: IGE glaciology (ex LGGE)

1st and 2nd day: Galilée building



Tram B stop “Les Taillées-Universités” or C stop “Hector Berlioz-Universités”

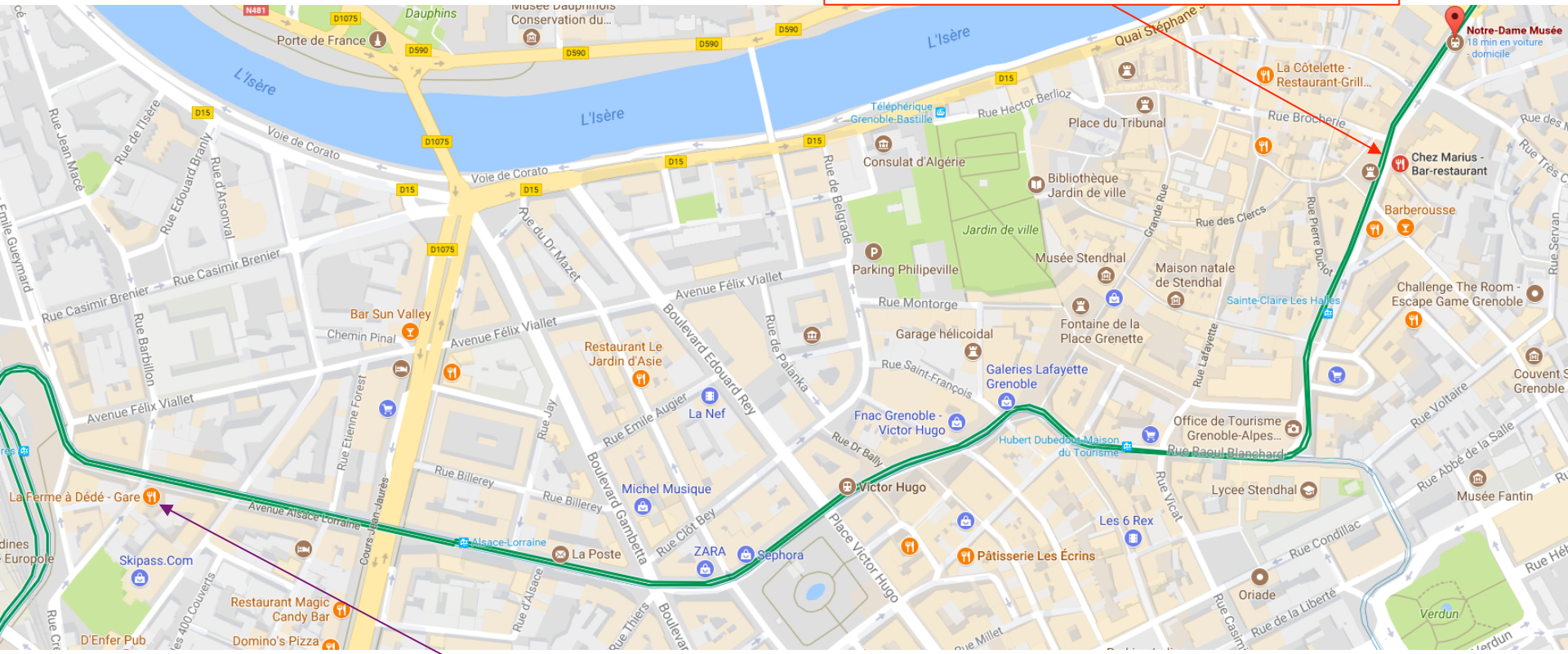
Tram B or C stop “Bibliothèques Universitaires”

Lunch

Where to eat ?
Gallilée
No Name (Restaurant)
IGE
Maison INP (snack)
Martin's (restaurant)
Sandwiches, bagels, etc.
Barnave (snack)
Diderot (Snack)
Pizzeria
Avenue de Verdun
Chemin de la Carronnerie
Chemin de l'Île d'Amour
Chemin des Acacias
Rue Antoine Polotti
Rue des Taillées
Rue de la Piscine
Rue de la Passerelle
Rue de la Chimie
Rue de la Papeterie
Rue de la Physique
Rue Molière
Rue de la Houille Blanche
Avenue Centrale
Rue des Résidences
Rue Jean Richard Bloch
Rue Pierre Brossolette
Avenue du Doyen Louis Weil
Allée de Berlioz
Rue Barnave
Rue Diderot
Rue des Glairons
Rue des Universités
Rue de la Vignate
Allée du Pérou
Allée de Palestine
Allée des Sports
Chemin de la Digue
Chemin de Contre Halage
Avenue de l'Obiou
Quick
Parc de l'île d'Amour
IUT1 Grenoble - Site Campus
Arboretum Robert Ruffier-Lanche
Centre National d'Enseignement a...
Ensimag
Sciences Po Grenoble Junior Conseil
Université de Grenoble
IAE Grenoble
DLST
Sciences Po Grenoble
Université Stendhal - Grenoble 3
l'Aquarium (ex salle Condillac)
Résidence Ouest
Lidl
Google
L'Isère
D1090
E712
N87

Dinners (For those who have booked)

Thursday 19h30 – Chez Marius
1 place Notre Dame



Wednesday 19h30 - La ferme à Dédé
55 Avenue Alsace Loraine

Short history of Elmer/Ice (not anymore so short...) 1/2

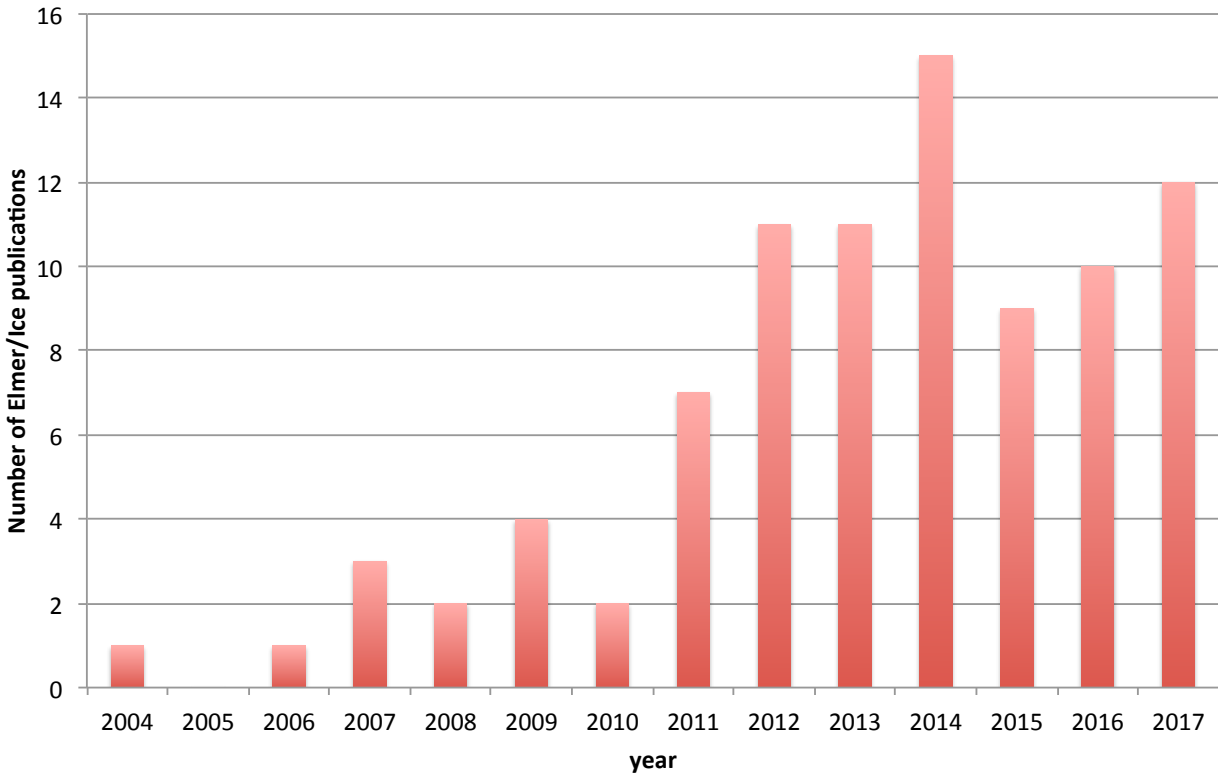
- ✓ EGU2002: OG was looking for a 3D FE code to model the flow of strain-induced anisotropic polar ice – meet TZ
- ✓ March 2003: OG visited CSC for few days: AIFlowSolver and FabricSolver partly implemented
- ✓ August 2005 – One year visit of OG at CSC (Anisotropy, cavity, glaciers, ISMIP tests, ...)
- ✓ February 2008 – First Elmer/Ice Course - Grenoble
- ✓ June 2011 – SVALI summer school – Finland
- ✓ 2012 – Elmer/Ice has now a website, a logo and a mailing list
- ✓ 2012 – Elmer/Ice comes as a Elmer Package – New wiki
- ✓ 2012 – Elmer/Ice course at UBC/SFU
- ✓ 2013 – Elmer/Ice courses at Univ. Washington and Univ. Alberta
- ✓ 9 April 2013 – First Elmer/Ice users meeting – EGU 2013
- ✓ May 2013 – Second SVALI summer school – Finland

Short history of Elmer/Ice (not anymore so short...) 2/2

- ✓ 2-day beginner Elmer/Ice course, 3-4 Oct. 2013, LGGE, Grenoble, France
- ✓ 3-day Elmer/Ice advanced workshop, 4-6 Nov. 2013, CSC, Espoo, Finland
- ✓ April 2014 – Second Elmer/Ice users meeting – EGU 2014
- ✓ 3-day beginner Elmer/Ice course, 27-29 Oct. 2014, IMO, Reykjavík, Iceland
- ✓ April 2015 – Third Elmer/Ice users meeting – EGU 2015
- ✓ 2-day beginner Elmer/ice course, 2-3 Nov. 2015, CIC, NBI, Copenhagen, Denmark
- ✓ 3-day Elmer/Ice advanced workshop, 30 Nov, 1&2 Dec 2015, LGGE, Grenoble, France
- ✓ 3-days beginner course, Oct 2016, Oslo
- ✓ April 2017 – Fourth Elmer/Ice users meeting – EGU 2017
- ✓ 2-day beginner Elmer/Ice course, 23&24 October 2017, Srockholm

and now a new advanced 3-day workshop at IGE

A growing community



14 Courses ~ 240 participants

4 Elmer/Ice users meetings

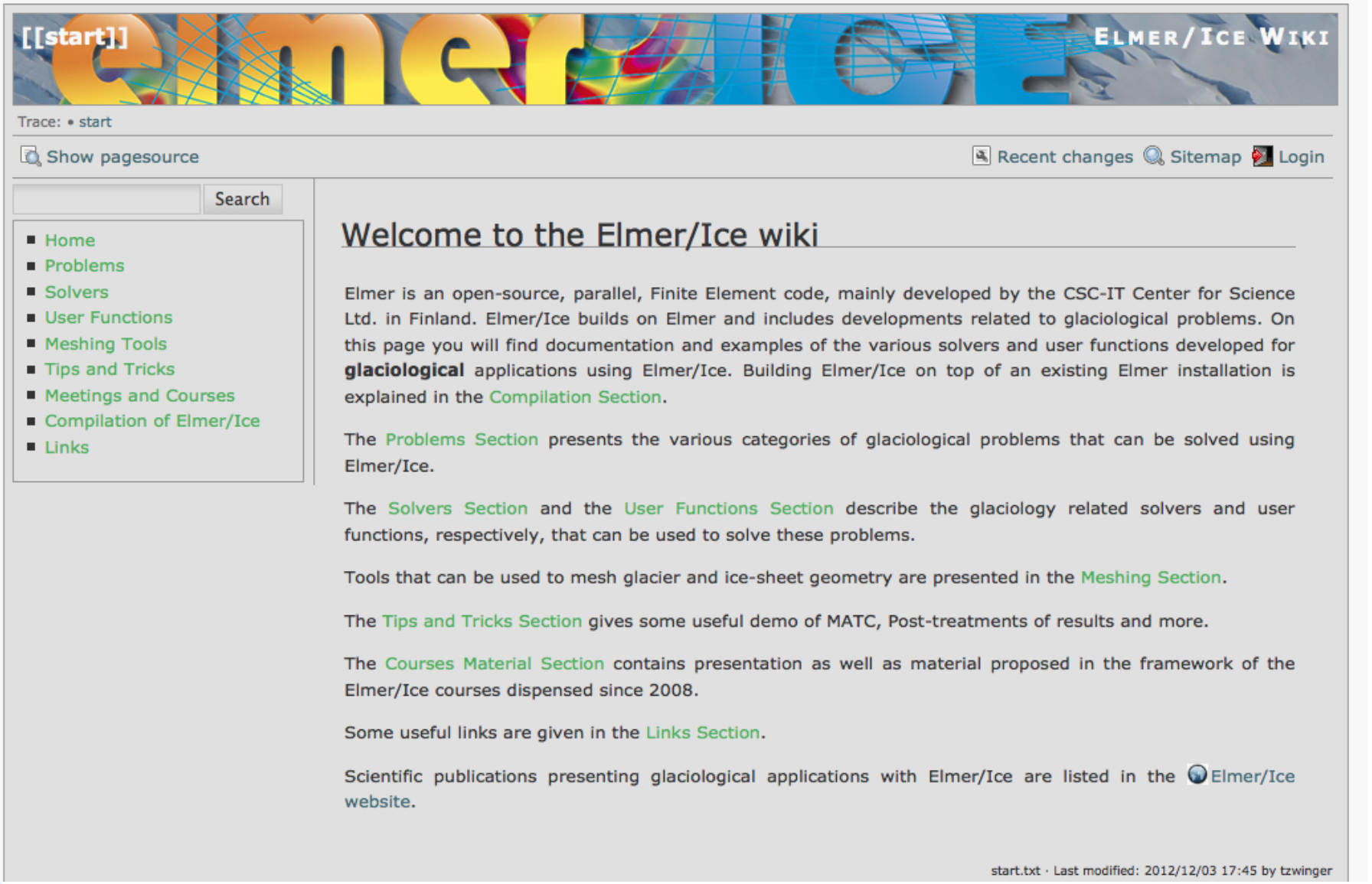
88 publications

Since few years, first authors are not only anymore only from CSC or IGE (ex LGGE)...

Elmer/Ice website

http://elmerice.elmerfem.org/

Elmer/Ice wiki http://elmerice.elmerfem.org/wiki/doku.php



Elmer/Ice mailing list

To subscribe to the Elmer/Ice list *elmerice@elmerfem.org*, just sent an email to *majordomo@elmerfem.org*, with in the body the text:

subscribe elmerice

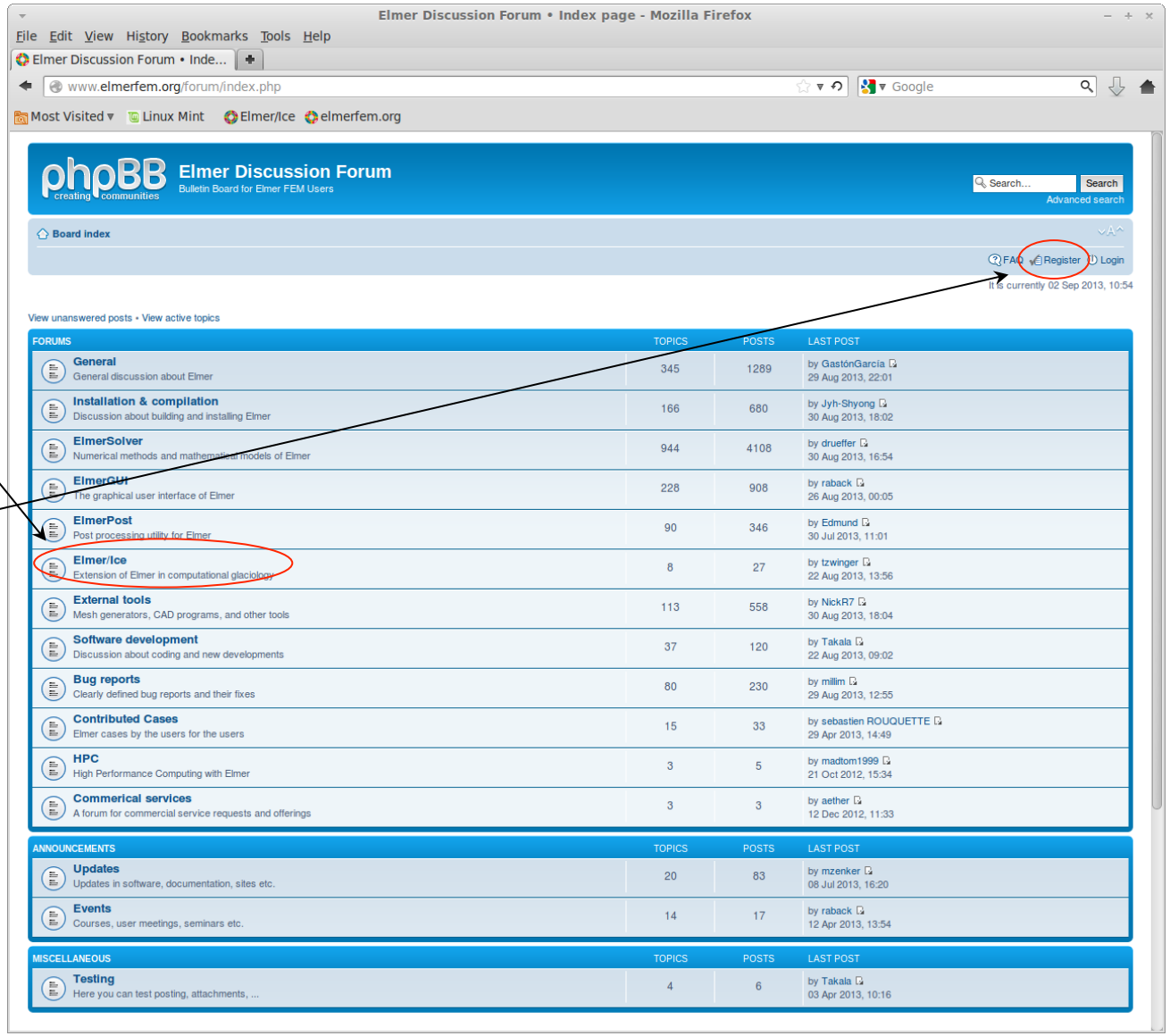
If you do not know how to use mailing lists run by majordomo you may sent a mail with "help" in the message body.

Elmer/Ice Forum

Under

http://www.elmerfem.org :

- Go to **Elmer Forum:** find answers on all aspects of Elmer
- Click on **Elmer/Ice** link: find answers specific to Elmer/Ice
- To get access: **Register** in upper right corner



Elmer/Ice on Twitter @ElmerIce1

Important links (summary)

Elmer at CSC (documentation, how to install, …)
http://www.elmerfem.org/
http://www.csc.fi/english/pages/elmer

Elmer Forum
http://elmerfem.org/forum/

Elmer/Ice webpage
http://elmerice.elmerfem.org/

Elmer/Ice wiki
http://elmerice.elmerfem.org/wiki/doku.php?id=start

How to share developments?

Different groups are working on the development of new solvers or user functions (currently hydrology, calving, etc...)

When these developments have been published, solvers and/or user functions + examples + tests + documentation on the wiki should be made available for the community.

Next advanced Elmer/Ice workshop

- move to an Elmer/Ice Users Workshop

- don’t present it as a course

- program mixing:
  - scientific/technical presentations of on-going works using Elmer/Ice by users
  - presentations of latest developments by developers
  - a time dedicated to support by developers in improving/ starting users applications
  - a time to exchange on future developments and applications

Objective: get more users participating and a regular (every 2 years?) meeting for Elmer/Ice users