

Forthcoming Activities 2015

- **2nd MID-TERM WORKSHOP.**

The 2nd annual meeting will be held on **September 4th in CIMNE**. We will have the presentation of each institution involved in the project, showing the work packages advance.

Also it will be held a workshop on **September 7th in CIMNE**

For more information please visit: <http://tcaimand.cimne.com/>

- **TRAINING ACTIVITIES**

CIMAT offers, every year in June, courses or conferences, whose main subject is the evolutive computation, through the modelling and numerical methods school.

This year will take place on **June 23rd–26th**

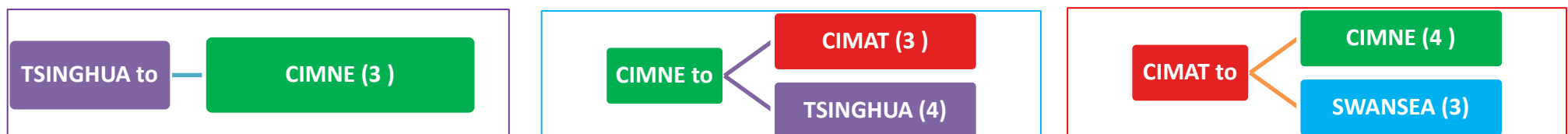
For more information please visit: <http://modelacion2015.eventos.cimat.mx>



Activities 2014

- **EXCHANGES**

During 2014 we had 34 months of exchanges involving 17 people (researchers and managers)



- **TECHNICAL SEMINARS**

One of the objectives of TCAiNMaND is to promote knowledge exchange. With the aim materializing such knowledge exchange, during our first year of Project, the researchers from CIMNE ([Julio Martí](#), [Fermín Otero](#) and [Ester Comellas](#)), CIMAT ([Victor Cardoso](#)), SWANSEA ([Min WANG](#) and [Xiao YAO](#)) delivered 8 seminars in their host institutions explaining their research and progress done during the secondments.

- **KICK OFF MEETING, JANUARY**



The Kick-off meeting was hosted by CIMNE (International Centre for Numerical Methods in Engineering), and attended by all the consortium partners. The alliance is bringing together three regions (Europe, Latin America and East Asia), and is composed of by the Civil and Computational Engineering Centre of Swansea University, the Research Centre in Mathematics (CIMAT) and Tsinghua University, besides CIMNE.

<http://tcaimand.cimne.com/Fichs/DisplayFich?fichName=/cvdata/cntr1/dtos/dcs/SEMINAR/KoM-minutes-Template-20141702.pdf>

- **1st MID-TERM WORKSHOP, JULY 18TH**

During the 1st Mid-ter Workshop, the assessment of TCAiNMaND project´s progress was positive. The institutions involved (CIMNE, CIMAT, TSINGHUA and SWANSEA) gave presentations on the activities carried out in WP 4 and WP 5. They also presented a work plan for the rest of the work packages that were about to start, and a session was held to coordinate the deliverables of WP 1 and WP 2.



Scientific Outputs 2014**• CONFERENCES**

Two semi-plenary lectures were delivered in [Computational Engineering and Science for Safety and Environmental Problems \(COMPSAFE 2014\)](#) held in April in Japan by Professors involved in TCAiNMaND project:



“Real-Time Computational Fluid Dynamics: a Challenging Demand for Safety and Environmental Problems” by Sergio Idelsohn.

The main target of this lecture is to look for algorithms to simulate CFD problems as fast as possible, improving the current performance of general-purpose commercial codes. This goal does not mean yet obtaining Real Time CFD solution but this goal is on this way, with the aim of changing days of simulations for hours of simulations making feasible the present challenging demand for safety and environmental problems.



“Dislocation Starvation by Computation/Experiment in Crystal Submicron Pillars” by Zhuo Zhuang.

The size effect at submicron scales is a crucially important issue on plasticity of materials. There are two main mechanisms that govern the plastic behavior at the submicron scales as the dimensions variation of the compressed pillars. The first is dislocation starvation induced by the annihilation of dislocations from the free surfaces. The second is forest dislocation hardening induced by the multiplication of a large amount of dislocations.

• ARTICLES

During the first year, the researchers involved published 3 scientific papers related to the project.

- Comellas E., Valdez S.I., Oller S., Botello S., Optimization method for the determination of material parameters in damaged composite structures, *Composite Structures* 122 (2015) 417-424
<http://www.sciencedirect.com/science/article/pii/S0263822314006709#>
- Wang XY., Cen S., Li C.F., Owen D.R.J., A priori error estimation for the stochastic perturbation method, *Comput. Methods Appl. Mech. Engrg.* 286 (2015) 1-21
<http://tcainmand.cimne.com/Fichs/DisplayFich?fichName=/cvdata/cntr1/dtos/dcs/PUBLICACION-SWANSEA-Y-TSHINHUA-2015-CMAME-A-priori-error-estimation.pdf>
- J.W. Feng, C.F. Li, S. Cen and D.R.J. Owen, Statistical reconstruction of two-phase random media, *Computers and Structures*, 137 (2014) 78-92
http://engweb.swan.ac.uk/~cfli/papers_pdf_files/2014_CAS_Statistical_Reconstruction_of_Two-Phase_Random_Media.pdf

• WORK PACKAGE PROGRESS

- ✓ 3 deliverables (completed the work of the first work package on the “Identification of Reference Problems on Natural Disasters”)
- ✓ Progress on 4 simulation codes: PFEM-2 (WP3); a new approach for Coupled Bonded Particle and Lattice Boltzmann Method (BPLBM) and another for FEM/DEM formulation for civil engineering problems (both WP4); and PLCd in (WP5).

• TECHNICAL REPORTS

As a result of the exchanges in the first year, 8 technical reports were produced by students from CIMNE ([Ester Comellas](#), [Cuauhtémoc Escudero](#), [Julio Martí](#), and [Fermin Otero](#)), CIMAT ([Victor Cardoso](#)), SWANSEA ([Min WANG](#) and [Xiao YAO](#)) and TSINGHUA ([Wang TAO](#) and [Qinglei Zeng](#)), detailing the topics developed during their stay and the results obtained.