

IMACLIM Network 2018 Workshop

November 26-27, COPPE, Rio de Janeiro, Brazil

Workshop overview

The first part of the morning of day 1 focused on discussions introduced by CIRED presentations about a return of experience on 2018 activities, and prospects on the shared IMACLIM code.¹ The return of experience proposed a broad sweep of the various stages of development of country efforts, including the starting efforts on Russia and Argentina. It also developed a list of transversal methodological issues addressed in the course of the year:

- A few issues regarding data hybridisation that still require settling.
- The modelling of technical and structural change, quite central to scenario building.
- The understanding of all price variations as relative to that of the chosen numéraire.
- In recursive versions, the control of unemployment trajectories and the question of modelling an explicit vs. implicit capital stock.

At the end of the morning, the session on the shared IMACLIM code presented the current state of the code as well as ongoing developments. Since February 2018, the IMACLIM-Country platform code has been hosted on Github, with a first version published on Zenodo under open licence². This first published version is so far only based on the French case. The presentation on the shared code also discussed the results of a survey among IMACLIM users of desirable developments. The survey stresses the need for increased flexibility and modularity regarding the choice of variables and parameters, as well as regarding the modelling of country-specific tax and transfer systems. A second major result of the survey is the need of structured guidelines to introduce newcomers to the code architecture, and guide them through a few first implementations of the code using the French data of the 'trunk' of the code.

The afternoon of day 1 turned to the scientific and policy context in which the Network currently develops. The first session saw Franck Lecocq, director of CIRED, present the process and agenda of the sixth assessment report of the IPCC (AR6) with a focus on its Chapter 4, of which Franck is one Coordinating Lead Author (CLA). Bearing on national mid-term (2030 to 2050) climate-mitigation pathways, Chapter 4 is a natural outlet of the Network's activities. For IMACLIM papers, to figure in Chapter 4 and more generally AR6 requires publication by mid-2020. One additional, important requirement of Chapter 4 is the exhaustive recension of the many national scenarios published over the years. To achieve this objective, Franck Lecocq and his co-CLA Harald Winkler want to set up an online database of modelled scenarios. There is an important opportunity for the Network to develop a template proposal that would sum up scenario assumptions and results, which Chapter 4 would then

¹ All presentations are available upon request.

² Le Treut, Combet, Bibas & Lefèvre. (2018, March 13). IMACLIM-Country platform: a first release based on the French case (Version V1.0.0.3). Zenodo. <http://doi.org/10.5281/zenodo.1197226>

pick up to report on the vast existing literature. The initiative could benefit from the DDPP experience of COPPE and HSE Moscow.

The second afternoon session of day 1 extended the discussion on the Network visibility beyond its participation to AR6. Addressed points included the initiative of a journal's special issue, the Network's webpage & "IMACLIM Manifesto" and additional communication channels. On the question of a special journal issue, it was agreed that the course to take is to convene an international meeting on some specific scientific issue, with high-level attendants, and to 'sell' the idea of the meeting to journal editors (e.g. Richard Tol at *Energy Economics*, Joanna Depledge at *Climate Policy*). Evoked topics were "mixed policy instruments", "the social versus technical cost of carbon", "triggering/enabling energy transitions", "climate mitigation versus SDGs". The Network's webpage was live-scanned, which triggered a few requirements as substituting the logos of Network members to those of CIREN institutions, or exploring the possibility to detach the page from the CIREN website. The "IMACLIM Manifesto"... changed names from the earlier, less appropriate IMACLIM "Charter", and raised a few reactions that prompted to agree on circulating it again among members. Other visibility suggestions touched upon:

- Shared IMACLIM descriptions, especially the shorter paragraphs that figure in papers.
- The opportunity of an IMACLIM Network Newsletter, which would circulate information on conference participations, contracting, paper publications, PhD defences, etc.
- The possibility of a scenario typology that could be shared by upcoming IMACLIM papers.
- The opportunity of publishing national hybrid matrices like CIREN did for France.³

Day 2 saw two "country" sessions with individual slots for each national IMACLIM endeavour, one in the morning and the other in the afternoon. Argentina and Russia, at an early stage of IMACLIM development, presented their macroeconomic and energy contexts, BU modelling activities and planned IMACLIM actions. Teams with running models were asked to focus on specific technical issues to foster discussion. Issues that came out regarded for a good part the linkage with BU models (IMACLIM-CHN, IMACLIM-IND): The discrepancy between the energy costs of BU models and the energy prices of IMACLIM. The challenge of disaggregating the net imports of BU models into gross imports and exports in IMACLIM. The challenge of using GDP as the sole varying demand driver of BU models. The question of how to represent decentralised renewables in IMACLIM. On the macroeconomics of IMACLIM, the question came out of the real effective exchange rate (REER) and its adjustment depending on the choice of model closure (IMACLIM-ZA). Of the modelling of the capital stock in recursive versions (IMACLIM-BR). The Saudi Arabia context also allowed addressing the modelling of administered prices under a pegged currency (IMACLIM-SAU). On more applied issues, IMACLIM-BR stressed concerned with the modelling of mixed instruments like the coexistence of a carbon tax and of a system of tradeable emission permits covering different emission sources.

In the morning of Day 2, one additional session was devoted to coupling endeavours not relying on IMACLIM for their macroeconomics, with presentations from KAPSARC and ERC-UCT colleagues. The two presentations expectedly echoed many of the challenges faced by IMACLIM endeavours, including the trade-offs between first-best modelling specifications and the second-best features of the Saudi or South-African economies (e.g. administered prices). The discrepancy between national accounting and

³ see <https://data.mendeley.com/datasets/gyv6hxcwt3/1>.

energy data—which, interestingly, both teams chose to settle via cross-entropy techniques rather than to favour energy flow and price data, as IMACLIM tends to do. The discrepancy between BU and top-down output costs of energy sectors. The modelling of decentralised energy systems and of new sectors as battery or electric-car manufacturing. The longer-standing experiment at ERC-UCT underlines research interests in line with those of the French and Brazilian IMACLIM teams regarding the evolution of household preferences or the urge to model demand for energy services rather than for energy *per se*. On Saudi Arabia, the question of how to model the currency peg seems to be pending and will certainly foster future exchanges.

The last session of day 2 summarised the two-day discussions and organised the list of agreed-upon next steps.

Agreed upon next steps

- Setting up of a **Scenario Template** with two levels of aggregation: one high level of aggregation to serve the purpose of Chapter 4 of AR6, one more disaggregated level better fitted to cross-country comparisons within the Network
- Setting up of an online, open-access **Scenario Database** of Scenario Templates
- Final approval of the **IMACLIM Manifesto**... and of the fact that it is a Manifesto, not a Charter or a Commitment or Guidelines or... any other suggestion?
- Improvement of the **Network webpage** with logos of Network members, creation of a Network logo
- Exchange on 10-20-line **IMACLIM model overviews** to fit in papers & contracts
- Setting up of a **Network Newsletter** reporting on IMACLIM papers, conference participations, PhD defences and contracts
- Organisation of a **thematic workshop** sometime over summer 2019, meant as the first step of a **Special Issue process**.
- To meet reproducibility expectations, enhance visibility and ease cross-referencing, **publication of hybrid data** following the example of France at <https://data.mendeley.com/datasets/gyv6hxcwt3/1>

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