

WG 3ab: Parallel Session:

Monday 11 September 2023 (hours in local time of Gdansk)

Session of WG 3ab, Part I: Organization of work related to ConSAT		
Room: Zubr		
ConSAT and links with other related development:		
Chair: Matthias Raschendorfer		
09:00 – 09:10	All	Preparation, Welcome
09:10 – 09:30	Matthias Raschendorfer (MR)	Action-plan and current state of ConSAT
Contrasting particular ConSAT-issues (each introduced by MR) with associated other work, reported by: Martin Köhler (MK); Linda Schlemmer (LS); Jean-Marie Bettems (JMB)		
09:30 – 09:45	MR <-> MK	Additional Roughness by change of land-use <-> Special SSO-Tuning (by Günther Zängl)
09:45 – 10:00	MR <-> LS	Further development of STIC (e.g. Thermal SSO) <-> Parallel development of a TKESV scheme
10:00 – 10:20	MR <-> MK	Surface-layer shear amplification <-> Adaptive Parameter Tuning (by Günther Zängl) <-> Ocean Coupling and Mixed Upper Ocean Layer
10:20 – 10:30	MR <-> JMB	Dynamic Surface-Smoothing by snow <-> possible issue also for follow-up of SAINT?
10:30 – 10:40	MR <-> JMB	Closing Water-budget related to vert.-diff. of hydrometeors <-> possible issue also of WG3b in general?
10:40 – 11:00	All	Coffee

25nd COSMO General Meeting

11 September - 15 September 2023
(face-to-face)

11:00 – 11:15	MR <-> LS	Revised TERRA with implicit treatment of surface processes <-> Modularization of current TERRA code (by Roland Wirth)
11:15 – 11:30	MR <-> JMB, LS	Thermal coupling of ML->SL snow within implicit TERRA-version <-> Sasch Bellaire's implementations in ICON branch 'nix' (JMB) <-> Related ideas/planning in ICON_Seamless/Consolidated (LS)
11:30 – 11:45	MR <-> MR, JMB	Prepared implicit mixed phase interception and semi-transparent cover-layer <-> Related measures by Günther Zängl (MR) <-> Related planning within WG3b (JMB)
11:45 – 11:55	MR <-> MR, LS	Modularization and cleaning of turbulence code <-> BRIDE-project within WG2
11:55 – 12:30	All	Final Discussion about questions like: a) Are there inherent contradictions, and have we ideas towards a harmonization? b) What are the true open problems, and can we arrange all the related efforts under a leading concept? c) How can we organize a workflow of complementing contributions to the model, avoiding double work as well as undesired interference?
12:30 – 14:00	All	Lunch

25nd COSMO General Meeting

11 September - 15 September 2023

(face-to-face)

Session of WG 3ab, Part II: Considering the role of COSMO (as a consortium) regarding development of model physics in general

Room: Zubr

Discussion about the role of COSMO WGs 3a,b (under the roof of COSMO SMC) in the interplay with ICON authorities, National Services, Research Centers and their consortia (such as CLM):

Chair: Jean-Marie Bettems, Matthias Raschendorfer

14:00 – 14:15	Jean-Marie Bettems, Matthias Raschendorfer	Introduction and personal perspectives.
14:15 – 15:30	All	<p>Discussion about questions like:</p> <ul style="list-style-type: none"> a) Could the SCM still be a place for <ul style="list-style-type: none"> - compiling a coherent and consistent development- and implementation-plan for short- to longer-range from all desired initiatives for model development? - coordinating the order and priorities of code-implementations, aiming to minimize overall work and mutual disturbances, as well as to optimize efficiency of individual engagement? b) Should the WG3ab leaders (or delegates) be included into the non-technical gate-keeping process under GitLab for ICON-nwp as regards a review of content? c) Should, perhaps, new physics WGs be established according thematically connected issues, which explicitly include developers outside of COSMO/NWP (such as climate people and ICON developers in general)? d) Should, in contrast, the physics WGs (a part of COSMO-SMC) <ul style="list-style-type: none"> - restrict to particular COSMO/NWP issues? - and provide an overview of other development at the most? e) Should, perhaps, a kind of “core model-development” group be established (dealing with the matters of our WGs 2,3ab) and should this be closer connected with the already existing ICON-developer group? f) Should SMC also organize general aid for special problems or burden related to model development in the sense of a proper division of work?
15:30 – 16:00	ALL	Coffee

Session of WG 3ab, Part III: Organization of technical support for coding of new physics development (e.g. related to BuildBot-testing and GPU-porting)

Room: **Zubr**

Towards developing a common understanding of model developers about the current needs and shortcomings regarding the process of finally getting a larger development on top of already operational code into the master-code, facing the

- large and further developing technical overhead of the ICON code, e.g., due to GPU-facilities
- high and still increasing update rate of the master code and the BuildBot test-infrastructure
- implementation of not tunable (particularly empirical) extensions apart from consistent parameterization strategies
- large formal code reorganization, running in parallel (organized and planned by ICON groups)
- growing list of coding standards (formulated and agreed by ICON groups)
- obligatory readiness of the code for various
 - computer systems, methods of parameter variation or applications apart from NWP
 - alternative non-operational parameterization schemes for the same purpose with all their overhead and special requirements

Chair: Jean-Marie Bettems, Matthias Raschendorfer

16:00 – 16:15	Jean-Marie Bettems, Matthias Raschendorfer	Introduction and report about personal experiences
16:15 – 16:30	ALL	Other individual reports about related experiences
16:30 – 17:30	ALL	<p>Discussion about wishes like:</p> <ul style="list-style-type: none"> a) Alternative parameterizations -> Single, consistent code with upgrade options. b) Empirical extensions: Hard-coded with fix numbers -> Adapting to new, more advanced parameterizations. c) Better arrangement with running code-development, when introducing extensive modifications of technical overhead (such as ACC-directives) into the related master-code <ul style="list-style-type: none"> ➤ Adaptation of related review/gate-keeping ➤ Taking-over of related modification in development branches by those actions as well, if desired d) Technical support: mandatory part of future action-planning e) Better division of work to associated experts within the community: <ul style="list-style-type: none"> - Support at using GitLab efficiently - Support, if debugging is necessary on external machines - Support at achieving readiness of new development for GPU - Adaptation of too sensible BB-tests, failing due to pure difference of rounding errors. - Providing tools helping to prescind from minor modifications (such as blanks and comments) for review with GitLab - Support of non-technical gate-keeping by factual experts of related matters
17:30 – 18:00	ALL	Time-buffer or possibility to join (at least the final discussion of) the parallel WG6 session just about technical issues (ICON-SCA/C)

WG 3a: Parallel Session:

Tuesday 12 September 2023 (hours in local Time of Gdansk)

Session of WG3a + ART: PP CAIR2 and related issues Room: Zubr		
Running development related to Radiation, Microphysics and Aerosols as organized by PP CAIR2 or other groups/projects contributing to the related ICON code: Chair: Matthias Raschendorfer, Harel Muskatel		
14:00 – 14:30	Ali Hoshyaripour	Treatment of aerosol-radiation interaction at KIT
14:30 – 15:00	Linda Schlemmer, Ali Hoshyaripour	Operationalization of ICON-ART and further developments within the German project PermaStrom
15:00 – 15:30	Daniel Rieger	Further work on the 2D prognostic aerosol scheme
15:30 – 16:00	All	Coffee
16:00 – 16:30	Pavel Khain	Tackling strong precipitation overestimation in ICON during unstable events with weak dynamic forcing
16:30 – 17:00	Harel Muskatel,	Status of PP CAIR2 including Alberto de Lozar's adaptations in the microphysics (generalized hydrometeors)
17:00 – 17:30	Linda Schlemmer, Martin Köhler	A survey of other work related to clouds, radiation and aerosols in the physics department of DWD
17:30 – 18:00	Harel Muskatel, All	Final PP CAIR2 session: Open issues, coordination of work, future challenges, general discussion

Parallel session WG3b / PP CITTA' (Urban Modelling)

Tuesday, 12 September 2023

CEST 14:00 – 18:00 / UTC 12:00 – 16:00

Chair: Jan-Peter Schulz, Room Wilk		
14:00 – 14:10	Jan-Peter Schulz	Introduction and Agenda
14:10 – 14:40	Pavel Khain, Ron Drori	Operational use of the urban parametrization at IMS
14:40 – 15:10	Massimo Milelli	PP CITTA' update
15:10 – 15:40	Angelo Campanale, Marianna Adinolfi, Mario Raffa, Paola Mercogliano, Jan-Peter Schulz	Update on the latest TERRA_URB implementations by analyzing ICON-LAM and CCLM simulations
15:40 – 16:10	All	COFFEE BREAK
16:10 – 16:40	Valeria Garbero	Update on high-resolution experiments with ICON-LAM at Arpa Piemonte
16:40 – 17:10	Stefan Dinicila, Amalia Iriza-Burca, Rodica C. Dumitrache	PP CITTA' applications at NMA
17:10 – 18:00	All	Discussion