ROLLING WORK PLAN 2018 : STATUS in April 2019

	WP NAME	MAIN EDITOR(S)	STATUS	comment	2018 Reported manpower	2018 Committed manpower

ROLLING WORK PLAN 2018 : CHAPTER 1 : Common code design, generation and maintenance

Management	MGMT1	Management and ALADIN support activities	Piet Termonia and Patricia Pottier	**On track**		41.25	45
	MGMT2	Management LACE	Yong Wang and Andrea Ehrlich	**On track**		21.75	22
	MGMT3	Management HIRLAM	Jeanette Onvlee	**On track**		13.5	
Common	COM1.1	ALADIN Code architect coordination activities	Piet Termonia and Daan Degrauwe	**On track**		0.75	1
	COM1.2	HIRLAM Code analyst activities	Jeanette Onvlee & Roel Stappers		Worked on OOPS global VarBC and LAM DA (script) system analysis and documentation in 2018. Work on DA block testing and development of LAM OOPS awaiting availability of Cy46T1	5.5	
	COM2	Code generation and maintenance	Claude Fischer	**On track**		111.25	97.5
	COM3.1	Support for maintenance and Partners' implementations of ALADIN system	Maria Derkova	**On track**		154	6.5
	COM3.2	Support for maintenance and implementation of Harmonie system on local machines	Daniel Santos		Added in 2019 RWP		

ROLLING WORK PLAN 2018 : CHAPTER 2 : CORE PROGRAMS

Dynamics and scalability	CDPY1	Quasi-Elastic (QE) system	Ludovic Auger	**Completed**	Restults from simulations show no stability improvement.	8.00	6.00
	CDPY2	Development of methods for solving the implicit equation in gridpoint space.	Ludovic Auger	**On track**	Implementation in a 3D model has been partially achieved, treatment of orography is on tracks. Work with 2D vertical plane model and gridpoint discretization in a shallow-water is completed.	36.00	34.00
	CDPY3	Horizontally Explicit Vertically Implicit (HEVI) methods with ALADIN-NH core	Ludovic Auger	**On track**	The HEVI formulation has been improved, partially taking into account orography. The developpement of a new 3D code allowing HEVI or SI is not finished yet.	10.50	8.50
	CDPY4	Physics-dynamics interface	Daan Degrauwe	**Not started**	This has been discussed during the ALARO WDs. But no decision on an action has been taken. So there is no activitiy for the time being.	1.00	5.00
	CDPY5	Development of LAM components in Atlas	Daan Degrauwe	**On track**	The LAM part of Atlas have been developed. The impact of the projection on the operators is not done yet for discrete operators. Whether this should be prioritized will depend on the decisions taken during the dynamics days later this year.	0.25	3.00
Basic data assimilation setup	CPDA1	Core programme Basic data assimilation setup	Piet Termonia, Alena Trojakova	**On track**	Steady progress in the DAsKIT countries on (i) data preprocessing, (ii) use of BATOR, (iii) observation monitoring (OBSMON), and (iv) cycling. Bug and compilation issues have been reported. Further action on AMDAR data is being planned.	39.50	28.00

ROLLING WORK PLAN 2018 : CHAPTER 3 : OTHER R&D ACTIVITIES

Data Assimilation	DA1	Further development of 3D-Var (alg. Settings)	Roger Randriamampianina, Máté Mile, Claude Fischer	**On track**	Cycling strategy of a RUC was eloborated at DMI. Jk was activated in Austria, while in Hirlam its tuning has started. In MF, preparation and porting of the Arome DA in CY43T2 and coupled with the Arpège T1798C2.2 e-suite version.	41.00	29.75
	DA2	Development of flow-dependent algorithms	Roger Randriamampianina and Claude Fischer	**On track**	Good achievement in both Meteo France and Hirlam. Papers accepted recently: Caron etal. (MWR, 2019); Mercier etal. (QJ, 2019)	64.75	56.75
	DA3	Use of existing observations	Roger Randriamampianina, Jean-François Mahfouf	**On track**	Old types of observation were explored for reanalysis purpose in Hirlam. Significant progress on the use of ModeS and European radars in AROME-France	114.00	128.50
	DA4	Use of new observations types	Jean-François Mahfouf and Roger Randriamampianina	**On track**	More testing with assimilation of GNSS slant delay was done. Implementation of assimilation of Aeolus L2 HLOS wind started at Meteo France and MET Norway. Humidity aircraft data was tested in Hirlam and monitored in Arome-France.	84.25	84.50
	DA5	Development of assimilation setups suited for nowcasting	Roger Randriamampianina, Xiaohua Yang, Pierre Brousseau, Florian Meier	**On track**	Intensive testing of cloud intialisation method took place at FMI. MET Norway tested double nesting and 1 h RUC setup. Overlapping windows with connected assimilation cycles was tested at DMI. Nudging technique was tested at ZAMG.	28.00	25.75
	DA6	Participation in OOPS	Claude Fischer, Roel Stappers, Daan Degrauwe, Roger Randriamampianina	**On track**	Worth to notice that OOPS-IFS is becoming little by little a technical reality at ECMWF. We have been told that a OOPS-IFS 4D-VAR minimization now is part of the regular technical validation of new IFS cycles. In MF, the very first achievements from OOPS could be (1) to use the "oopsified" conf 903 for the production of IFS coupling files for Arome and (2) to start using DA component tests with OOPS binaries (prototyped first time for CY46T1).	19.00	26.50
	DA7	Observation pre-processing and diagnostic tools	Eoin Whelan, Alena Trojaková, Jean-Francois Mahfouf, Roger Randriamampianina	**On track**	Bator was updated to treat all observations, including new BUFR formated observations from GTS. HOOF radar pre-processing tool was developed in LACE. New version of the visualisation part of the Obsmon was developed with improved installation facility.	18.25	22.00
Dynamics	DY1	Boundary conditions and nesting	Sander Tijm	**On track**	work on weak constraint LBC was completed, will not lead to application. In tests of gl vs fullpos, the impact of adapting vertical interpolation in gl to something closer to fullpos was minimal.	5.25	3.75
	DY2	Time-stepping algorithm	Petra Smolíková	**On track**	The code of the “on demand” corrector step is prepared. Staff to take over?	1.50	6.75
	DY3	Vertical discretization	Petra Smolíková	**Completed**	Work on VFE has been finalized, published and phased.	5.50	3.00
	DY4	Semi-Lagrangian advection	Petra Smolíková	**Delayed or issues**	Study of use of the algorithm "on demand" which calculates the trajectory but stops in case the process seems to be divergent for a given grid point. Even if there is some portion of grid points for which the process diverges according to our criteria, we were not able to detect the benefit of the algorithm "on demand".	1.25	3.00

Physics parametrizations	PH1	Developments of AROME-France (and ARPEGE) physics	Claude Fischer and Yves Bouteloup	**On track**	Arpège physics tunings for the T1798C2.2 e-suite (CY43T2_op1). Tests with ECRAD and the Tiedtkte convection schemes are ongoing in GMAP. For Arome, tuning of the Arome schemes for the CY43T2 e-suite. Note that a significant effort for the Arpège and Arome CY43T2 e-suites was directed into implementing new model output diagnostics like visibility or surface precipitation types. The finalization of these developments actually lasted into 2019 (including the present time, where I write these lines !). In R&D, tests of ICE3_new and LIMA are continued; 3D turbulence research development.	43.25	88.00
	PH2	Developments of HARMONIE-AROME physics	Sander Tijm	**Delayed or issues**	Work on turbulence, cloud and convection schemes led to improvements but does not yet solve the problems seen with low clouds and deep convection adequately, so this work has continued into 2019. Good results with inclusion of CAMS aerosol so far, but this needs further adjustments and longer validation. Stable PBL tasks were delayed due to focus on low clouds and convection.	31.00	29.75
	PH3	Developments of ALARO physics	Neva Pristov	**On track**	ACRANEB2 is consolidated. An extensive literature study was done on 3D effects. TOUCANS: unification of QSSC is done, a new proposal is made for a two energies scheme (paper by Ivan). The homogeneization of the cloud treatment is planned (a fix is proposed for operations). Unsaturated downdrafts runs in Be. Prognostic graupel is being implemented. Coupling of SURFEX with ALARO progresses, some fribrillations are found and will be studies with the implicit model of the Best et al interface.	41.25	45.00
	PH4	Common 1D MUSC framework for parametrization validation	Sander Tijm, Wim de Rooij and Eric Bazile	**Delayed or issues**	MUSC is presently based on Cy38. A more portable version of MUSC based on Cy43 has been made to facilitate research experimentation on e.g. the radiation scheme, but this does not yet contain the idealized cases.	11.00	6.00
	PH5	Model Output PostProcessing Parameters	Maria Derkova	**On track**	Coordination will start in the RWP2019. A few diagnostics were already added for ALARO, AROME and ARPEGE.	9.00	
Surface analysis and modelling	SU1	Assimilation algorithms for surface assimilation	Rafiq Hamdi	**Delayed or issues**	The work on EKF is ongoing. The work on DIF progresses. STAEKF exists in cy40h, but will not be used to treat LAI. Hybrid approaches (relying on CANARI) are used in HIRLAM and MF for snow analysis. The development of sea ice with EKF is on track.	31.50	31.50
	SU2	Use of observations in surface assimilation	Stefan Schneider	**Delayed or issues**	Some documentation on satellite snow-extent products is written. Analysis for ASCAT is progressing slowly. Some progress is made on SIMBA buoys for sea ice. Progress is reported in the PhD work of Zied.	15.25	11.00
	SU3	SURFEX: validation of existing options for NWP	Patrick Samuelsson and Samuel Viana	**Delayed or issues**	Climate runs with a combination of new Surfex modules were delayed due to technical problems with Cy43h, but have now been completed and are being analyzed. This has led to delays in several tasks relying on the outcome of the climate runs.	44.75	38.50
	SU4	SURFEX: development of model components	Patrick Samuelsson	**On track**	Mostly on track. Glacier model developments were delayed/reprioritized due to decision within CARRA to use D95 rather than Extended Snow scheme.	16.00	17.25
	SU5	Assess/improve quality of surface characterization	Ekaterina Kurzeneva	**On track**	Mostly on track. Evaluation of ECOCLIMAP-SG has started, assessment within Harmonie-Arome is ongoing.	13.25	8.00
	SU6	Coupling with sea surface/ocean	Jure Cedilnik	**On track**	- A lot of work reported on the implementation of NEMO in MF, Slovenia and Sweden. - A coupling of Harmonie-Arome with the Wavewatch wave model has been realized by SMHI. Due to staff departure this work has stalled, however, with new staff at MetEireann this may be picked up again in 2019.	28.00	11.75

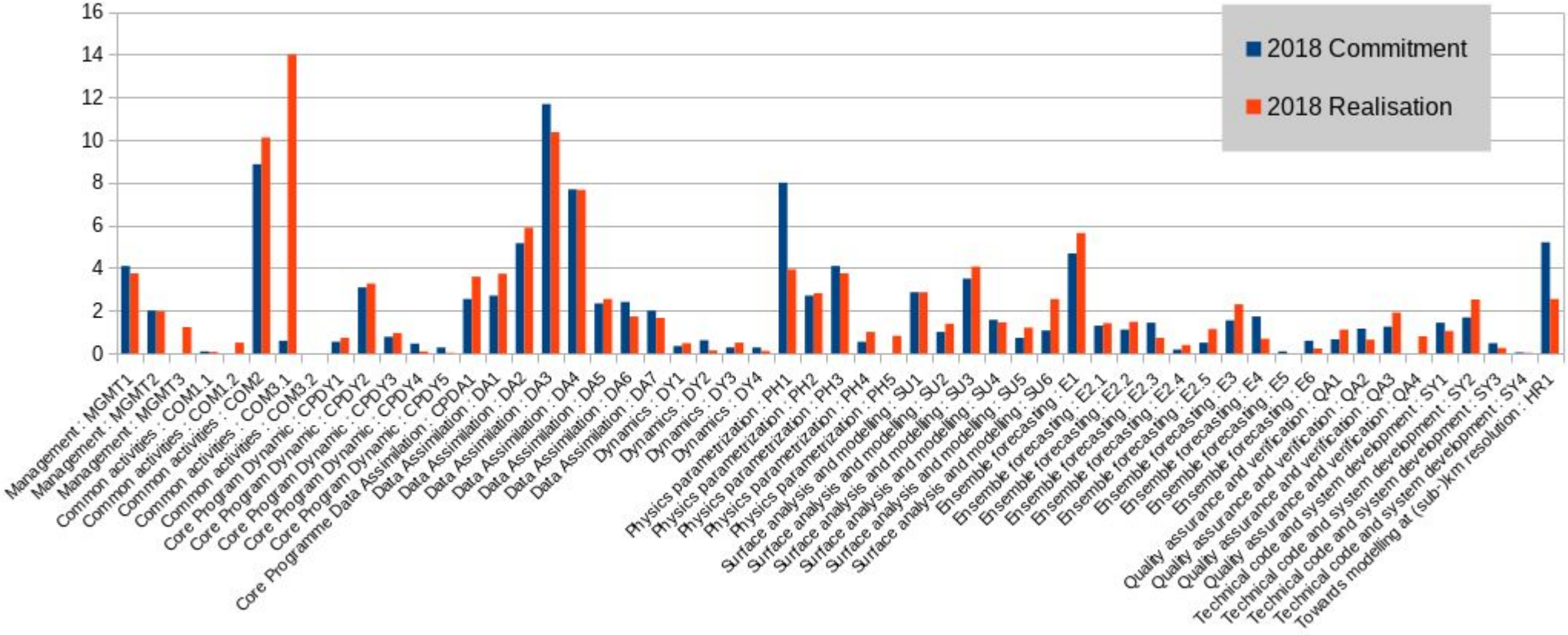
Ensemble forecasting and predictability	E1	Arome-France EPS (PEARO)	Claude Fischer	**On track**	The most noticeable aspect is the operational version of AEARO, and its use for initializing the ICs of the PEARO system. Preparation and porting of the CY43T2 PEARO version for the e-suite.	62.00	51.50
	E2.1	Development of convection-permitting ensembles: HarmonEPS - Physics perturbations	Inger-Lise Frogner	**Delayed or issues**	SPPT testing has been delayed but now has good momentum. SPP work is proceeding well. EPPES developments were stopped due to staff departure.	15.50	14.25
	E2.2	Development of convection-permitting ensembles: HarmonEPS - Initial conditions perturbations	Inger-Lise Frogner	**On track**	EDA work was completed. LETKF and Brand work is on track and will continue in 2019. Work on the intercomparison of these IC perturbation types is ongoing.	16.25	12.25
	E2.3	Development of convection-permitting ensembles: HarmonEPS - Surface perturbations	Inger-Lise Frogner	**Delayed or issues**	Work on surface field perturbations for SST and snow is on track. Work on surface physics parametrizations has waited for the new Surfex physics to become available in Cy43h2, and will start later this year.	8.00	15.75
	E2.4	Development of convection-permitting ensembles: HarmonEPS - Lateral boundary perturbations	Inger-Lise Frogner	**On track**	Research on options to improve ensemble spread with ENS LBC perturbations has continued into 2019. Activities on clustering have been completed.	4.25	2.00
	E2.5	Development of convection-permitting ensembles: HarmonEPS - HarmonEPS system	Inger-Lise Frogner	**On track**	HarmonEPS paper submitted to WAF with some delay. EPPES work stopped due to staff departure. Other activities have been completed or are on track.	12.50	5.50
	E3	Development of convection-permitting ensembles: LACE	Martin Belluš	**On track**	Work is ongoing in Hungary and Austria. Pre-operational suite for C-LAEF (convection permitting LAEF) in Austria expected in 2019	25.25	17.00
	E4	Development, maintenance and operation of LAEF	Martin Belluš	**On track**	ALADIN-LAEF 5km version in progress - ecFlow suite for pre-operational version soon available	7.50	19.00
	E5	Production and maintenance of GLAMEPS	Inger-Lise Frogner	**On track**	GLAMEPS production will stop after 1 July 2019.		1.00
	E6	Ensemble calibration	Inger-Lise Frogner	**Delayed or issues**	Preparations have been made for calibration in inhomogeneous terrain, but this has not yet been well tested. Site calibration for visibility has been eveloped for MEPS. Work to extend calibration to other parameters has been limited, partly due to the potential lack of consistent observations.	2.50	6.50

Quality assurance and verification	QA1	Development of HARP	Christoph Zingerle	**Delayed or issues**	Emphasis was put on new strategy (from R-scripts to R-packages) and reorganizing/rewriting package. Alpha version is available, work ongoing. QA1.2 was delayed due to people involved in QA1.1. Implementation of QA1.2 is forseen also in 2019 and expected to be less demanding within the new framework.	12.25	7.25
	QA2	Development of new verification methods	Christoph Zingerle	**Delayed or Issues**	Documentation of avaialable Data and Methods delayes as focus was on QA1. New person entered the task and decided to be shifted to 2019. Developments of new methods is ongoing.	7.00	12.75
	QA3	Quality assessment of new HARMONIE-AROME cycles and alleviation of model weaknesses	Bent Hansen Sass	**On track**	Quarterly validation reports are produced routinely. Pre-release validation and verification for Cy43h2.1 will start soon. A Harmonie User Workshop has been held to foster interaction with forecasters, and it has been agreed that this will be continued on a yearly basis.	21.00	13.75
	QA4	Verification and quality control at MF : development of new methods or products	Joël Stein, Claude Fischer	**On track**	- development of a new control library to assess Météo-France products (in replacement of our old codes that have upgradability/performance issues) - publication of a scientific paper on how to account for neighborhoods in contingency tables : "Neighborhood-based contingency tables including errors compensation", by Stein and Stoop. - research activity on track on how to include neighborhoods in probabilistic scores.	8.75	

Technical code and system development	SY1	Code optimization	Daniel Santos	**On track**	Note that single precision has been technically tested in Arpège and Arome forecasts in CY43T2. Such efforts will have to be repeated in future cycles.	11.50	15.75
	SY2	Maintenance and development of the Harmonie Reference System	Daniel Santos	**Delayed or issues**	Most tasks have been completed or are on track. The preparations for the introduction and testing of new components in Cy43h2 have been delayed due to technical issues with Cy43h, but this has now begun.	27.75	18.50
	SY3	Revision of the Harmonie scripting system	Daniel Santos	**Delayed or issues**	Some actions on this have started but on others ideas still need to be developed more. WIll be continued in 2019.	2.75	5.25
	SY4	Hirlam maintenance and support	Daniel Santos	**Completed**	This work package has been deleted in the 2019 RWP.	0.25	0.50
Towards modelling at (sub-)km resolution	HR1	(Sub)-km configurations and turbulence R&D activity	Sander Tijm & Martina Tudor & Petra Smolikova & Claude Fischer	**On track**	J: Tasks related to km- and hectometric-scale experimentation with Harmonie-Arome are mostly on track. Coupling of Harmonie-Arome with LES has been delayed. Stochastic physics has not been worked on (no staff available).	28.00	57.25

Manpower (in F.T.E.) in 2018 RWP Work Packages

Committed in RWP2018, Reported in manpower DataBase in 2018



2018 reported manpower by Work Packages