

SMOS Data Assimilation Study: Progress Meeting 2

ECMWF

Agenda

- 9:00 - 9:30 SMOS mission status (N. Wright)**
- 9:30 - 9:45 BUFR specification and WMO validation (M. Dragosavac and I. Mallas)**
- 9:45 - 10:15 Discussion on possible use of ECMWF analysis for SMOS reprocessing**
- 10:15 - 10:30 coffee**
- 10:30 - 11:00 SMOS data assimilation study: Project schedule, CCN and hand over (P. de Rosnay)**
- 11:00 - 11:30 CMEM status (Technical, SSS) (P. de Rosnay)**
- 11:30 - 12:00 EKF implementation and results ; use of satellite data for SM analysis (P. de Rosnay)**
- 12:00 - 12:30 Soil roughness effects (SMOSREX study) and detailed working plan (J. Muñoz-Sabater)**
- 12:30 - 13:15 Lunch**
- 13:15 - 13:30 Link between the SMOS DA study and SMOS Cal-Val activities**
- 13:30 - 14:00 AOB, next meetings and conclusion**

Introduction PM1: Work package overview

Part I: Monitoring

WP 1100: Sensitivity study on auxiliary data sets

WP 1200: Ocean Salinity in the Integrated Forecast System

WP 1300: Global Surface Emission Model (CMEM forward operator)

WP 1400: IFS Interface

WP 1500: RTTOVS Update

WP 1610: Collocation Software Development

WP 1620: Operational Pre-processing Chain

WP 1630: Offline Monitoring Suite

WP 1700: Continuous monitoring

WP 1800: Hot Spot Analysis

Introduction PM1: Work package overview

Part II: Data Assimilation Study

WP 2110: EKF Modifications

WP 2120: Surface Data Assimilation System Adjustment

WP 2140: AMSR-E Bias Correction

WP 2240: AMSR-E Data Assimilation Experiments

WP 2130: SMOS Bias Correction

WP 2200: SMOS Data Assimilation Experiments

WP 2300: Soil Moisture Monitoring

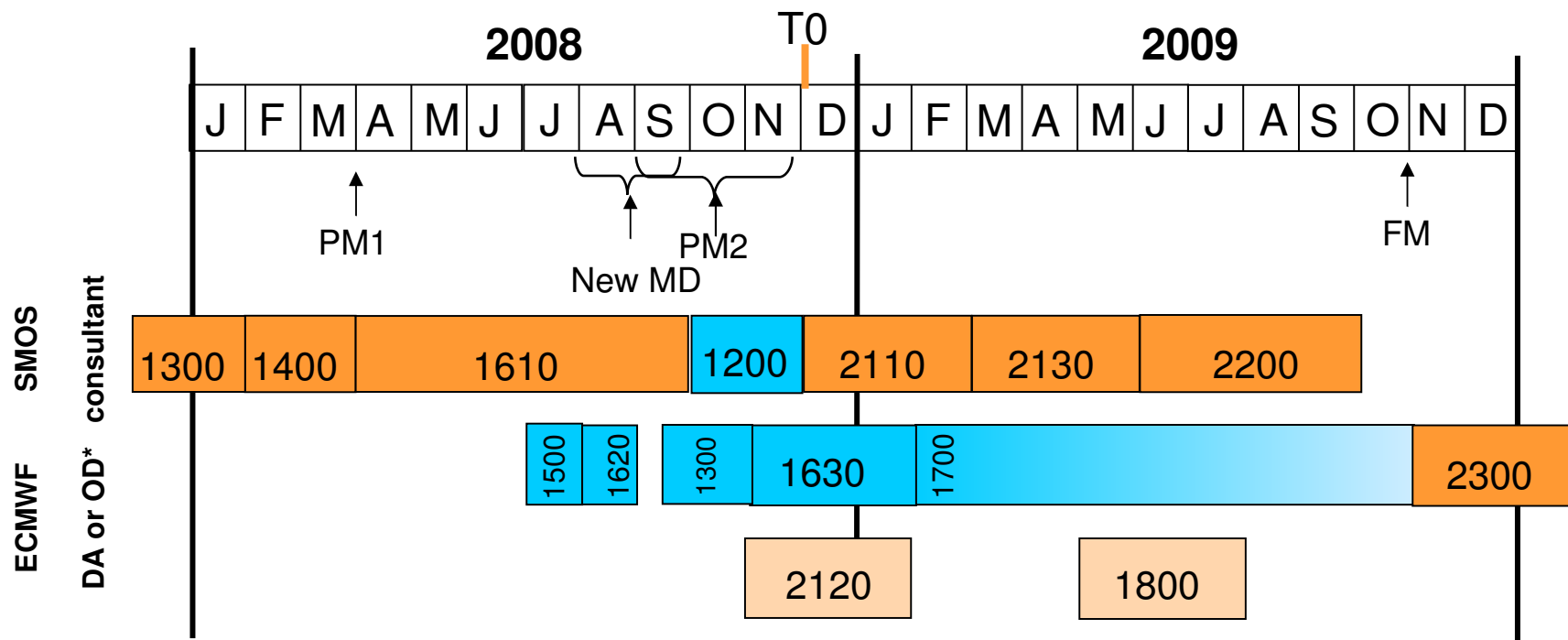
CCN

CCN: launch in July 2009

→ **2 additional Wps to test the EKF with AMSR-E C-band data**

Apr 2008

SMOS PM1 schedule



Constraints:

WP 1610, WP 1500, WP 1620 ready at t_0

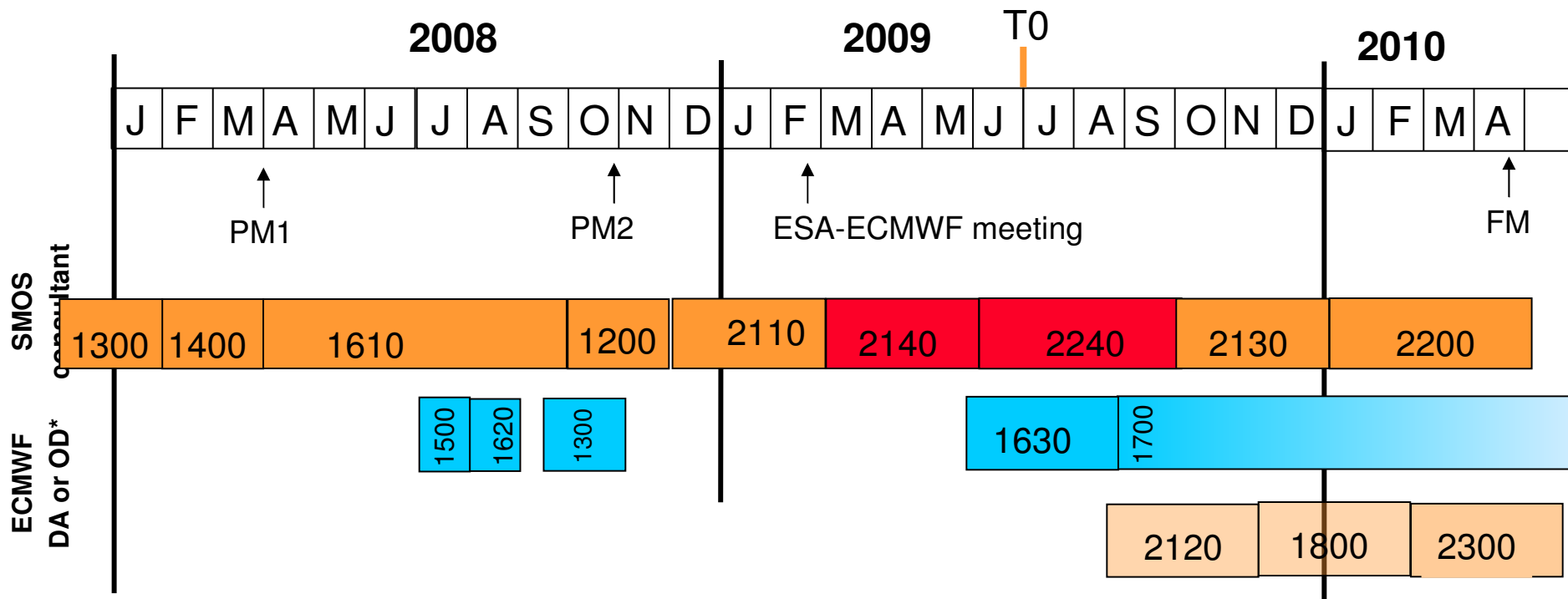
WP 1200, WP 1630, WP 2120 ready at t_{0+2}

WP 1700 needs 'consistent' data

WP 2130, WP 2200 need ~ 3 months of 'consistent' data

May 2008

SMOS CCN1 schedule



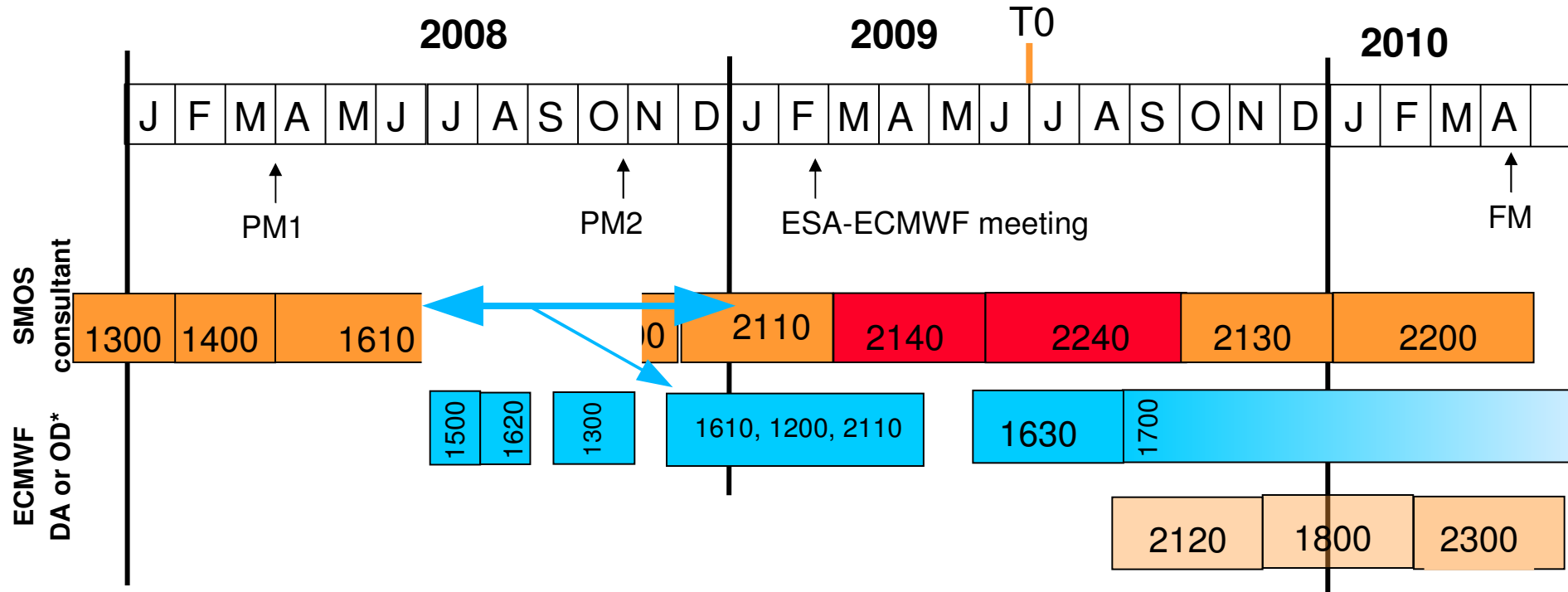
CCN: schedule updated with two new work packages:

WP 2140: Bias corrections based on AMSR-E C-band data,

WP 2240: Assimilation experiments with AMSR-E C-band data

July 2008

SMOS CCN1 schedule

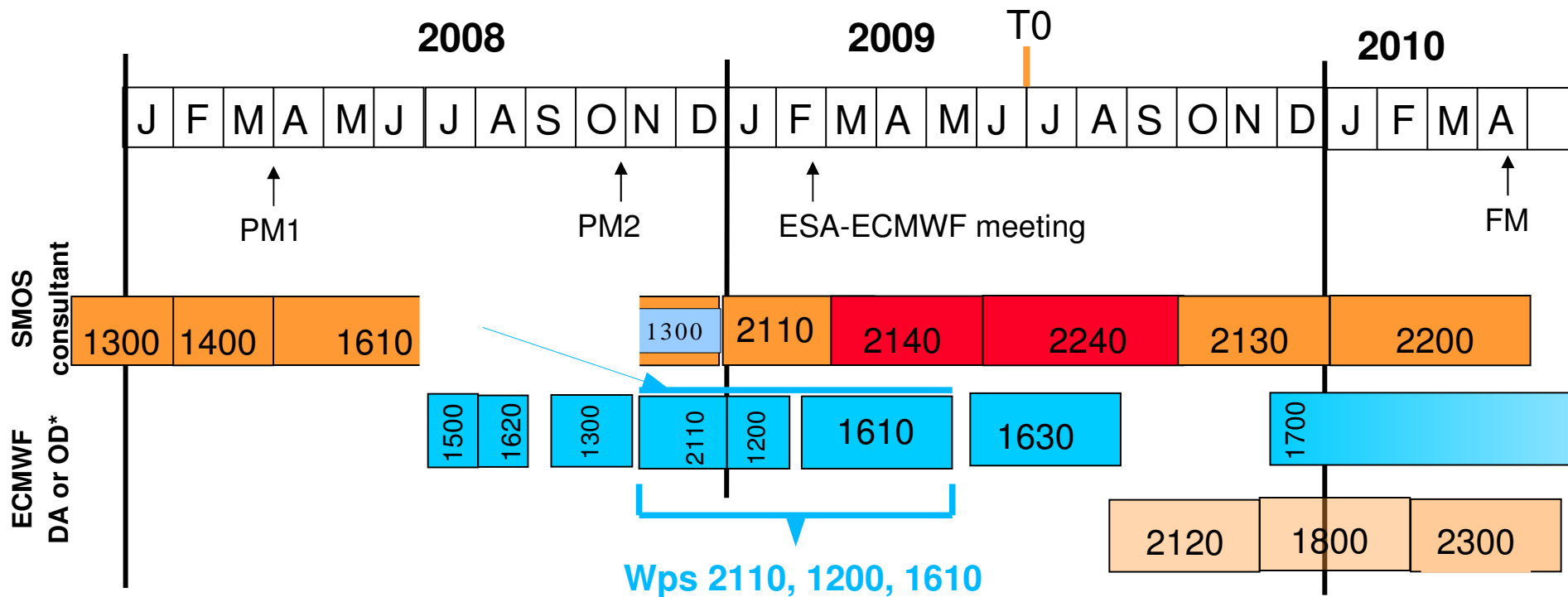


- **Four month with NO SMOS consultant : July - October 2008**
(+ two month for the new SMOS consultant to start with SMS, CMEM, HTESSSEL -> Dec 2008)
- > **Report the work on the ECMWF DA consultant in Nov 2008 - Apr. 2009**
3 Wps concerned: 1200 (full), 1610, 2110 (part)



December 2008

SMOS PM2 schedule



According to PM1:

WP 1610, WP 1500, WP 1620 ready at t_0

WP 1200, WP 1630, WP 2120 ready at t_0+2

WP 1700 needs 'consistent' data (start at the end of the commissioning phase)

WP 2130, WP 2200 need ~ 3 months of 'consistent' data

Further studies of high interest for SMOS:

Physically based Bias correction (VAR-BC)

Sensitivity to the lakes (based on H-TESSSEL-lakes coupled to CMEM)

Areas where L-band improves compared to C-band

Further products:

L4 Root zone soil moisture products ? If SMOS assimilation improves the IFS performances, root zone SM can be produced and disseminated

Vegetation Water Content ?

Project Status

Deliverable due at T0 (July 2009):

MileStone 1 Tech Note (MS1TN)

- MS1TN-P1: Global surface emission (Wps 1100, 1300)

- Holmes et al. 2008, IEEE Trans. Geosc. Rem. Sens., 46, 846- 856
- Drusch et al., 2008, ECMWF Tech Memo 565 + J. Hydrometeorology
- de Rosnay et al. 2008: Microwave Land Surface modelling evaluation against AMSR- E data over West Africa. The AMMA Land Surface Model Intercomparison Experiment coupled to the Community Microwave Emission Model (ALMIP- MEM) ECMWF Tech Memo 564 + J. Geophys. Res. in rev.
- Muñoz Sabater et al., Sensitivity of L-band emission to roughness parameterisation: A SMOSREX case study, GRL in preparation

- MS1TN-P2: IFS interface, CMEM I/O (WP 1400)

- Based on CMEM documentation and Web pages

- MS1TN-P3: RTTOV Update (WP 1500) -> RTTOV Interface (WP1610)

Deliverable due at T0+6 (January 2010):

Milestone 2 Technical Note (MSTN2)

- MS2TN-P1: Collocation software development (WP 1610)

- MS2TN-P2: Operational pre-processing chain (WP)

- MST2TN-P3: Offline Monitoring suite

Deliverable due at T0+11 (June 2010):

Monitoring reports (T0+11, T0+14, T0+17)