



WMO RAI



WMO RA VI
RCC-Network



METEO
FRANCE



Mediterranean Climate Outlook Forum

Zagreb, 20-23, November 2017

News products from RA VI RCC-LRF for MedCOF

Jean-Michel SOUBEYROUX, Christian VIEL , Jacques RICHON, Gaëlle OUZEAU

Direction de la Climatologie et des Services Climatiques

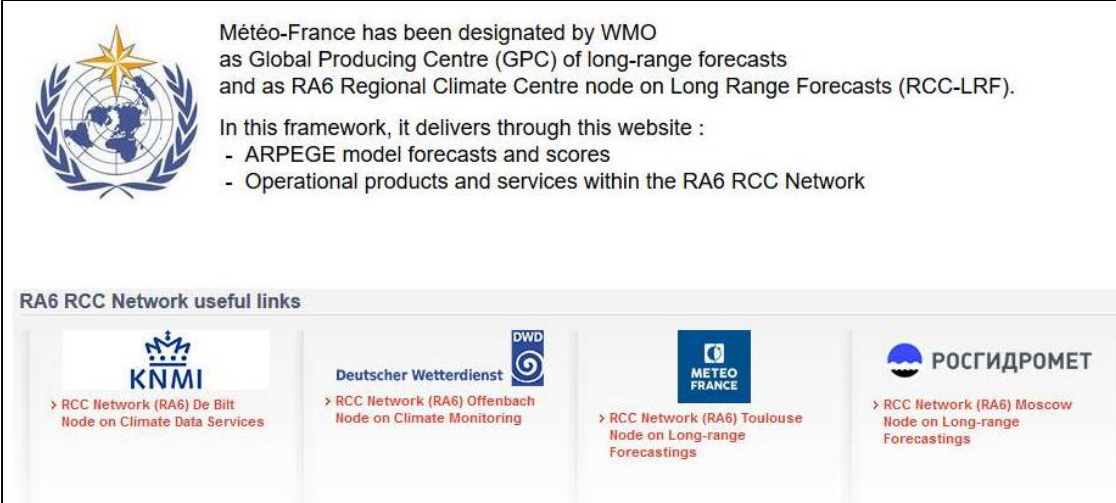
<http://seasonal.meteo.fr/>



Background

- Opening of the website « seasonal.meteo.fr » in 2010 in the frame of WMO functions as GPC Toulouse and RCC-LRF (RA VI)
- Continuous improvement of RCC products linked with fruitful collaboration in frame of EU project and in particular C3S/433 (development of SF products, RCC and RCOFusers oriented)
- RCC-LRF Operational plan in preparation (RCC workshop Belgrade 2016) and MedCOF discussions last year in Roma

RCC_LRF portal with links to other RCC websites







Météo-France has been designated by WMO as Global Producing Centre (GPC) of long-range forecasts and as RA6 Regional Climate Centre node on Long Range Forecasts (RCC-LRF).

In this framework, it delivers through this website :

- ARPEGE model forecasts and scores
- Operational products and services within the RA6 RCC Network

RA6 RCC Network useful links

 > RCC Network (RA6) De Bilt Node on Climate Data Services	 Deutscher Wetterdienst > RCC Network (RA6) Offenbach Node on Climate Monitoring	 > RCC Network (RA6) Toulouse Node on Long-range Forecastings	 РОСГИДРОМЕТ > RCC Network (RA6) Moscow Node on Long-range Forecastings
---	--	--	---

RCC-LRF website at a glance

On line documentation on models and products description

Password protected.
Login/pwd to be asked to
rcc-lrf-mf@meteo.fr

Monthly RCC
bulletins and access
to the archive

Access to model
information :
forecast/scores and
climatology

MF Syst 5 and
others (ECMWF ...)

English and French
versions

Climate monitoring
products based on
ERA I climatology :
maps and graphics

The screenshot shows the 'Seasonal forecast' page of the Meteo France website. At the top left is the Meteo France logo. The main heading is 'Seasonal forecast'. In the top right corner, there is a user greeting 'Bonjour test_RCC' and a 'my account | logout' link. Below the heading is a navigation menu with tabs for 'Home', 'Documentation', 'Bulletins', 'Models', and 'Climate monitoring'. The main content area features a 'Welcome' message and a globe background. Below this are three main product sections: 'Access to the latest bulletins', 'ARPEGE system 5', and 'Climate monitoring'. Each section includes a representative image and a list of links.

Access to the latest bulletins

- > Last RCC bulletin (restricted access)
- > Synthesis maps
- > Last briefing

ARPEGE system 5

Météo-France is developing a seasonal forecasting model called Arpege whose current version is the system 5. The online documentation provided technical details.

- > Access to ARPEGE system 5 model forecast maps

Climate monitoring

This space contains maps and diagrams from the observed data

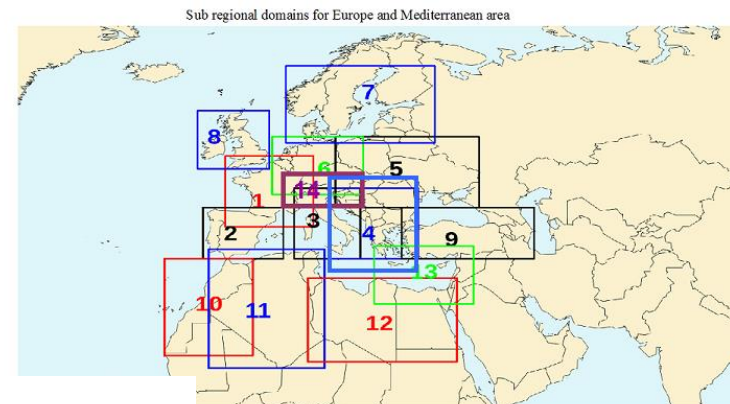
- > Access to climate monitoring maps

Quick access for the main products

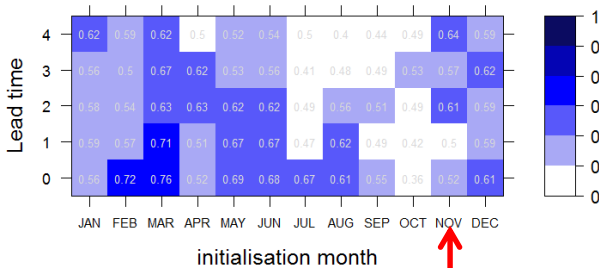


Model skills on MedCOF area

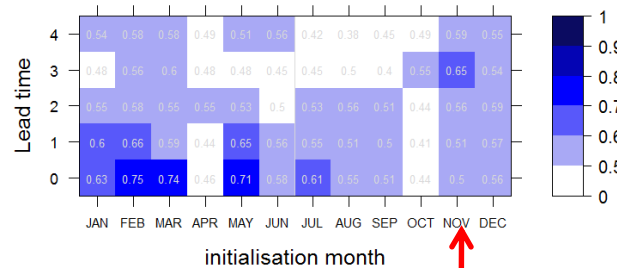
- Definition on sub regional domains for MedCOF needs
- Evaluation of the MF Syst 5 skills for temperature and precipitation (by init and LT)



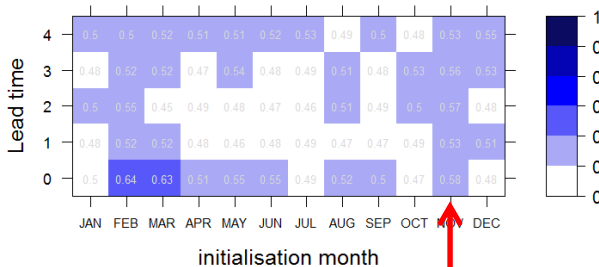
ARPEGE Sys. 5 - T2m inland Balkans
ROC areas Lower Tercile - reference ERAI 1991-2014
3-Month forecasts



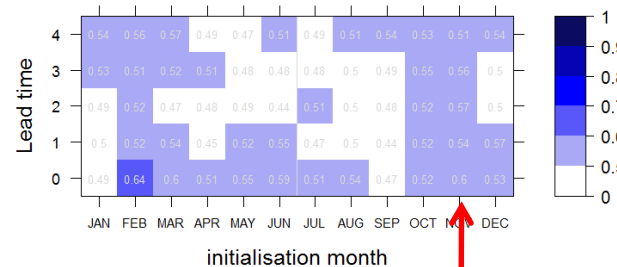
ARPEGE Sys. 5 - T2m inland Balkans
ROC areas Higher Tercile - reference ERAI 1991-2014
3-Month forecasts



ARPEGE Sys. 5 - RR Balkans
ROC areas Lower Tercile - reference GPCP 1991-2014
3-Month forecasts



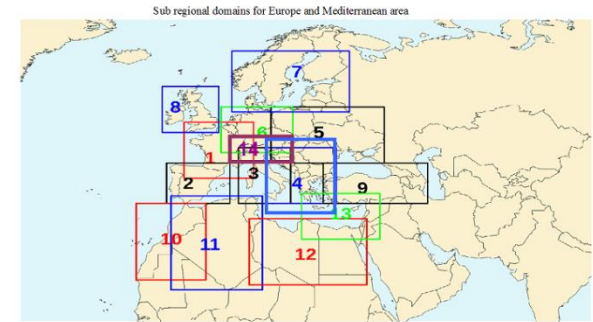
ARPEGE Sys. 5 - RR Balkans
ROC areas Higher Tercile - reference GPCP 1991-2014
3-Month forecasts



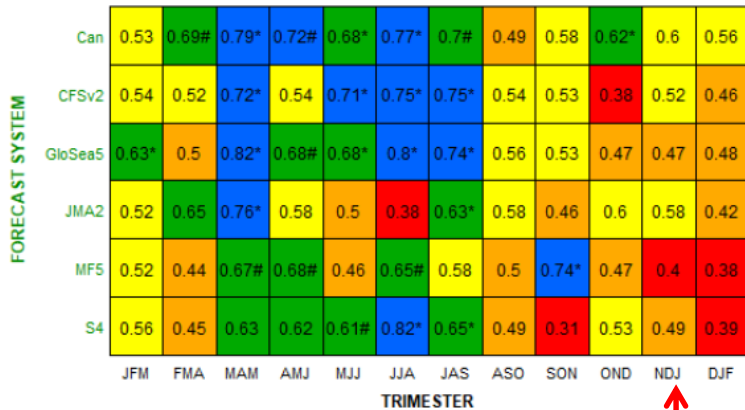
<http://seasonal.meteo.fr/fr/content/ARP5-scores-synthese-roc>

Model skills on MedCOF area

- Extension of this work by AEMET considering more models and statistical scores
- Below, only for temperature (complete report available on the documentation menu)



Area: BALKANS Lead-Time: 1 Detrend FALSE / Weighted TRUE



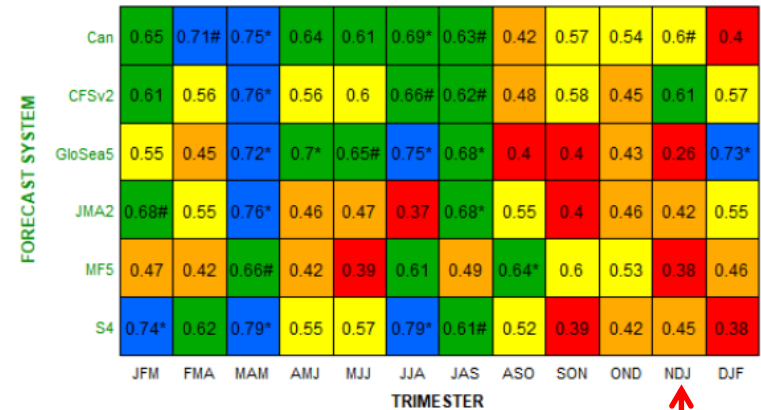
Observations: ERA Interim 1997-2009



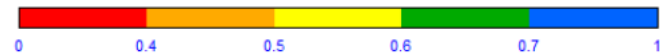
Regional Lower ROC Area - TEMPERATURE

* p-val <= 0.05 # 0.05 < p-val <= 0.10 (nBootstrapping = 1000)

Area: BALKANS Lead-Time: 1 Detrend FALSE / Weighted TRUE



Observations: ERA Interim 1997-2009



Regional Upper ROC Area - TEMPERATURE

* p-val <= 0.05 # 0.05 < p-val <= 0.10 (nBootstrapping = 1000)

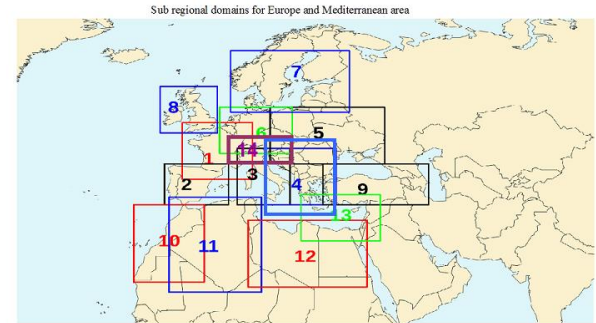
Eroteida Sánchez García, José Voces Aboy, Ernesto Rodríguez Camino (AEMET)

<http://seasonal.meteo.fr/en/content/doc-generale>

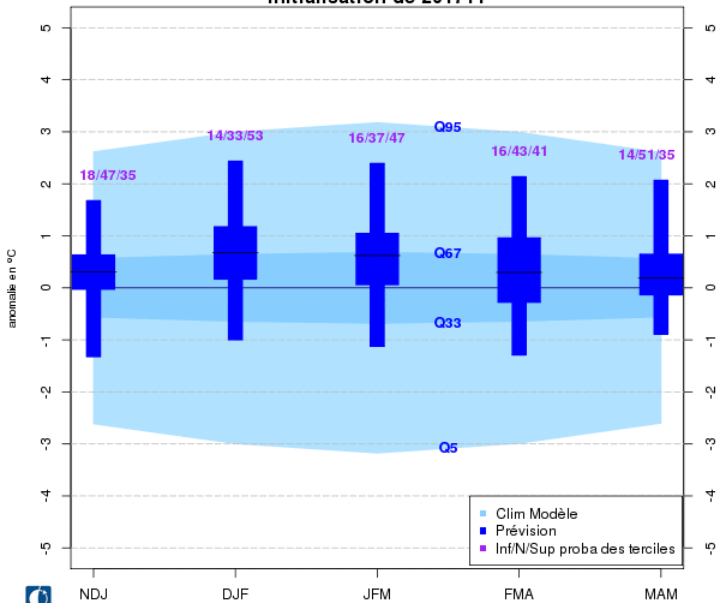


New products for MedCOF area

- Application of MedCOF sud domains for operationnal production (MF Syst 5 ... to start)
- Example : 3 Months_climagramms (T and P) for Balkans area, init Nov 2017

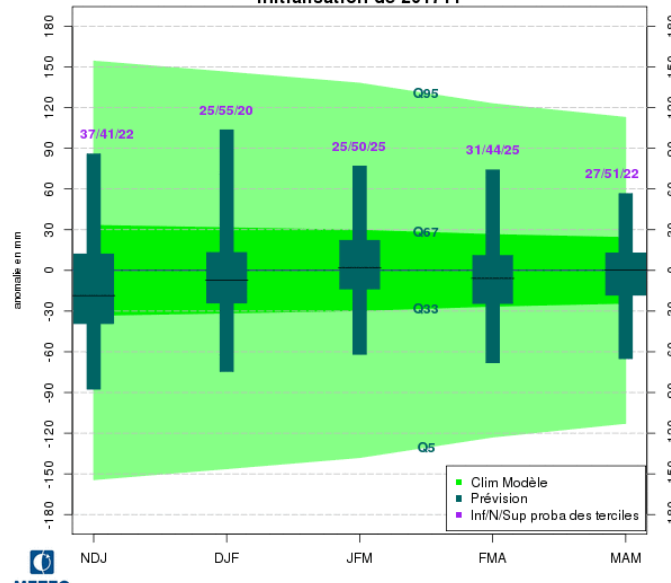


Climagramme des anomalies trimestrielles de température à 2 mètres dans la boîte Balkans initialisation de 201711



ARPEGE system 5 clim modèle calculée sur la période : 1991-2014

Climagramme des anomalies trimestrielles de précipitations dans la boîte Balkans initialisation de 201711



ARPEGE system 5 clim modèle calculée sur la période : 1991-2014

<http://seasonal.meteo.fr/en/content/ARP5-previ-climagrammes>

MedCOF 9 Zagreb Nov 2017

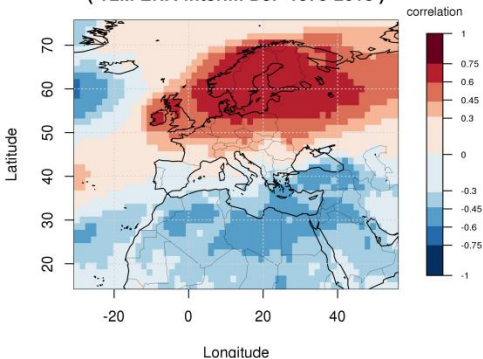
New products for MedCOF area

- Modes of variability and their impacts on MedCOF area : NAO,EA,SCAN and PNA
- 2D representation for best understanding model behaviors

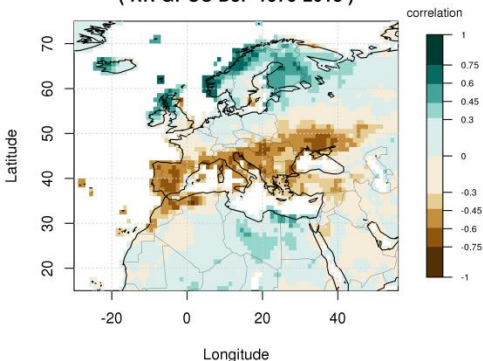
ARPEGE system 5 - Modes of variability

[Modes of variability patterns](#) [modes of variability impacts](#)

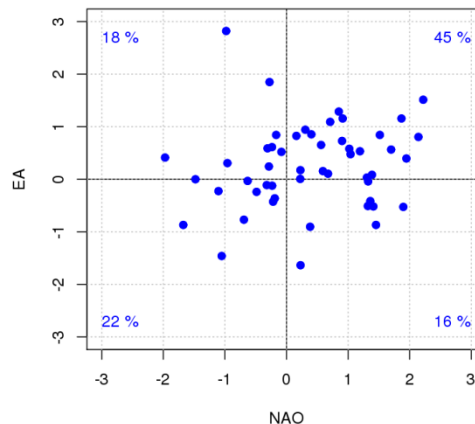
Correlation NAO - 2m temperature
(T2M ERA-Interim DJF 1979-2016)



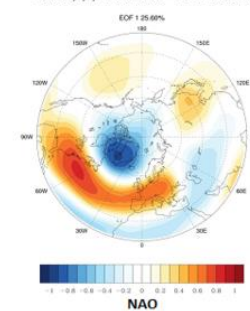
Correlation NAO - Precipitation
(RR GPCP DJF 1979-2013)



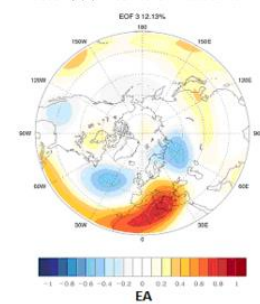
ARPEGE system 5 - Modes of variability
Init. : Nov. 2017 - Forecast for DJF



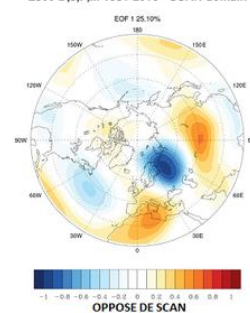
Z500 D,J,F,M 1981-2010 - NAAE domain



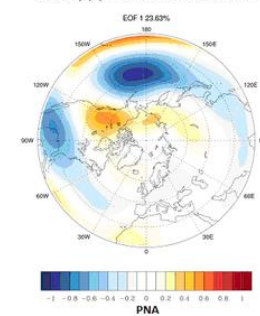
Z500 D,J,F,M 1981-2010 - NAAE domain



Z500 D,J,F,M 1981-2010 - SCAN domain



Z500 D,J,F,M 1981-2010 - PNA domain



Same information available
for the weather regimes
and their impacts on
MedCOF area

<http://seasonal.meteo.fr/en/content/ARP5-previ-modes>

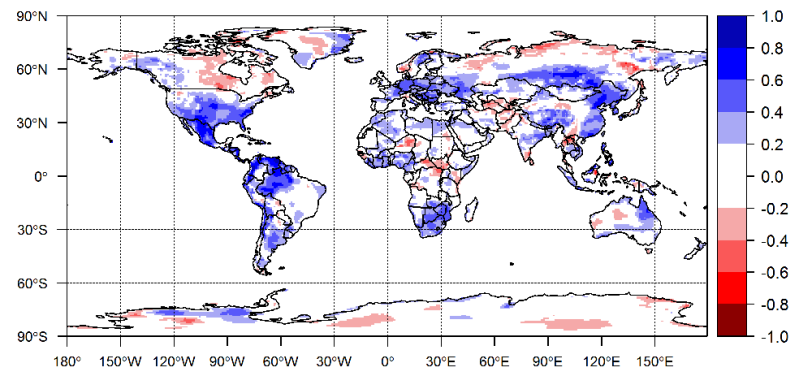


Experimental impact products

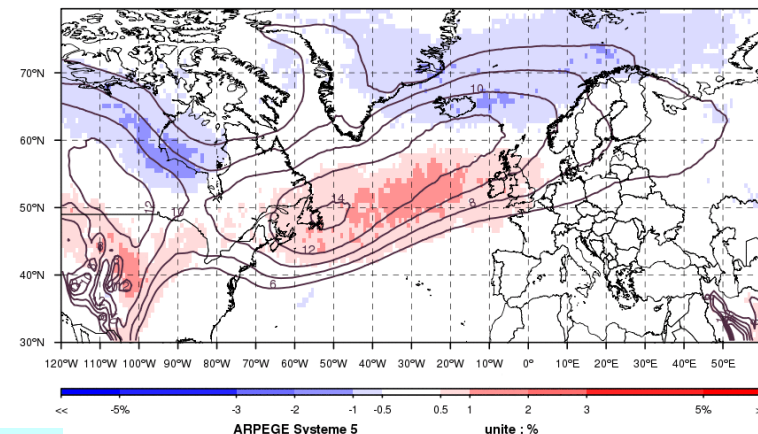
- Specification, predictability evaluation and experiment of impact products :
- Potential Evapotranspiration (PET) according to FAO formula
- Cold spell days frequency (heat wave days) (soon available)
- Severe winds frequency (through strong surface pressure tendencies)

<http://seasonal.meteo.fr/en/content/ARP5-previ-cartes>

ARPEGE System 5 - PET - Anomaly Correlation
Init. : 11 (NOV) - Lead Time : 1 (DJF)
reference ERAI 1991-2014



Climatologie et Prevision d'anomalie trimestrielle de
Frequence de tendance de PMER inferieure a -5hPa en 6 heures
initialisation de novembre 2017 - echeance 1 : DJF 2017-2018



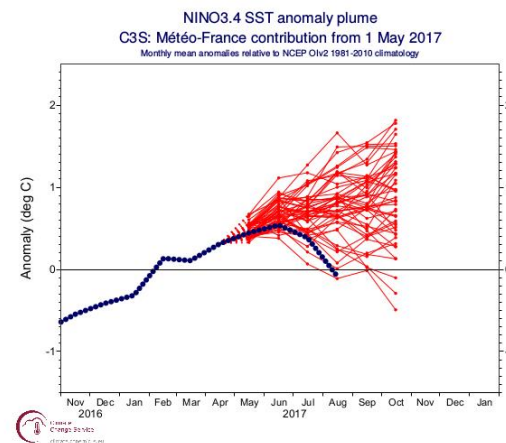
Verification bulletins

- Verification activities meet both researcher, operational and user needs
- New experimental RCC-LRF bulletin experimented in 2017 based on C3S models (ECMWF S4, MO S5, MF S5) for winter and summer forecasts (November and May init)
- Bulletin available on LRF website

Copernicus Atmosphere Monitoring Service

Content

I) Oceanic forecast :	5
I-1) Global SST forecast	5
I-2) Ocean Indices	6
II) Atmospheric circulation forecast	8
II-1) Global Teleconnection	8
II-2) Geopotential height 500 hPa anomalies	9
II-3) Variability modes and weather regimes	10
III) Regional temperature and precipitation forecast	11
III-1) Temperature	11
III-2) Precipitation	12



<http://seasonal.meteo.fr/en/content/bulletins-verification>


MedCOF 9 Zagreb Nov 2017

File product sheets

- Developing SF products and potential applications need also to improve support users (data origin, method, skills, use recommendations)
- 7 product file sheets have been provided for the new products

 [Help_Climagrams.pdf](#)

 [Help_cold-waves.pdf](#)

 [Help_ET.pdf](#)

 [Help_heat-waves.pdf](#)

 [Help_modes-of-variability.pdf](#)

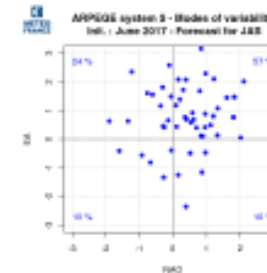
 [Help_Severe-Winds.pdf](#)

 [Help_Weather-Regimes.pdf](#)

Modes of variability

Definition : Seasonal variability affecting the European-Atlantic weather can be described by several modes, each of them explaining a part of the observed variance. Three teleconnections relevant for the European-Atlantic climate have been selected: the North Atlantic Oscillation (NAO), the East Atlantic mode (EA) and the Scandinavia Blocking mode (SCAN). The Pacific/North American pattern (PNA) is also calculated, in order to characterize a potential influence of ENSO on mid-latitude circulation.

Product description : The product is a 2D representation (NAO vs EA for example) of the forecast runs (blue dots) : The percentage of runs with EA/NAO positive/negative is indicated in each quadrant.



In this example (init June 2017), the forecast of Arp Syst 3 emphasizes the positive EA mode (probability 80%) and the positive NAO mode (probability 67%) but overall the combination of these two modes (probability 57%).

Météo-France/DCSC/AVII

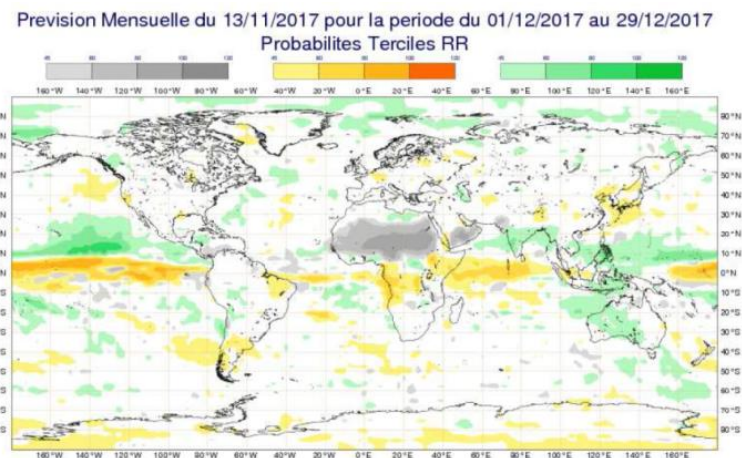
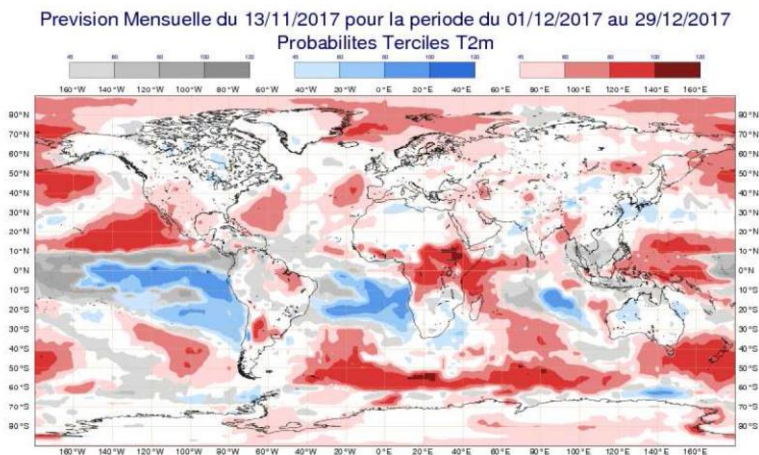
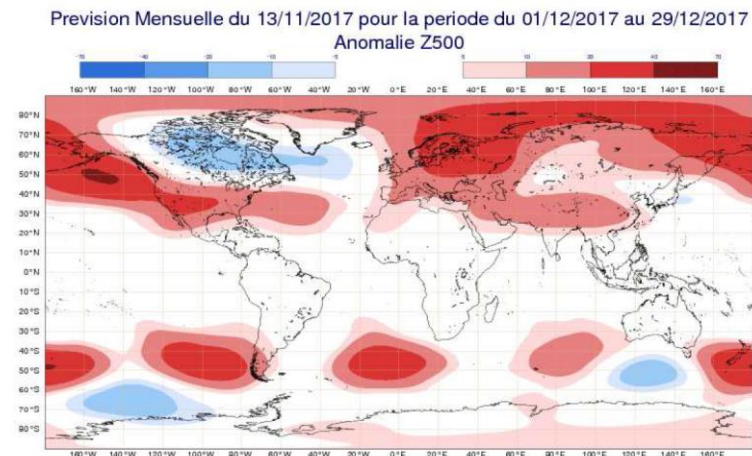
18/09/2017

page 1/4

<http://seasonal.meteo.fr/en/content/doc-generale>

Monthly forecast products for LRF activities

- Monthly time scale very important for users and RCC production (CWA) and also for analyzing the 1st month of SF
- Internal experiment of specific products based on ECMWF monthly model to be used in LRF production



Soon available on the website

Conclusion and perspectives

- According to the RCC Workshop discussions in Belgrade 2016
 - More user friendly dissemination
 - Issuance of LRF bulletin at a fixed date (and earlier)
 - Communication and users feedback : information towards NMHS (« News » section on the website, RCC Newsletter ...)
 - Link to Climate Data Store (C3S) for data access and MM general products

Thank you for your attention

contact : rcc-lrf-mf@meteo.fr