

Direction de la Météorologie Nationale
MOROCCO

RCC-North Africa LRF Bulletin

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Service Études Climatiques/ Centre National de Climat

MEDCOF-Training
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Procedure of elaboration of seasonal forecast bulletin for RCC-North Africa

1. Analysis of the current global climate system

Océan(SST)

Circulation atmosphérique

2. Patterns and Drivers (NAO, EA,TNA,MJO,ENSO..)

3. Dynamical seasonal forecast(SST,Z500,T2M,RR)

ARPEGE-
Climatv5.2

ECMWF

IRI

UKMO

WMOLC

EUROSIP

4. Statistical seasonal forecast for T2M

5. Analysis and synthesis

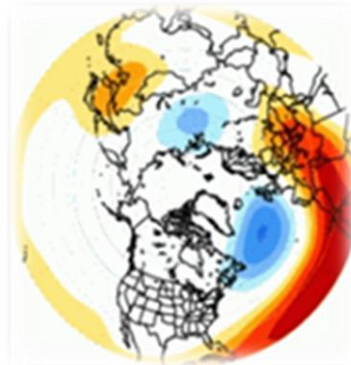
LRF Bulletin

Impact of Atmospheric pattern

Winter precipitation

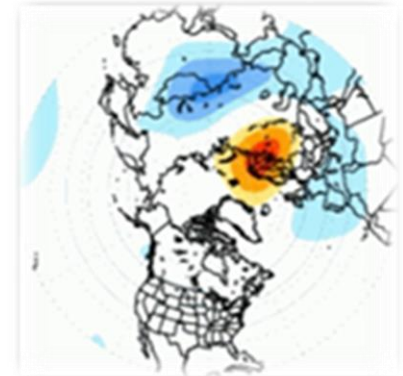


Spring precipitation

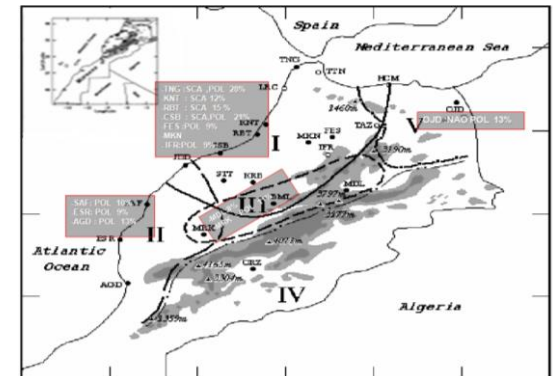
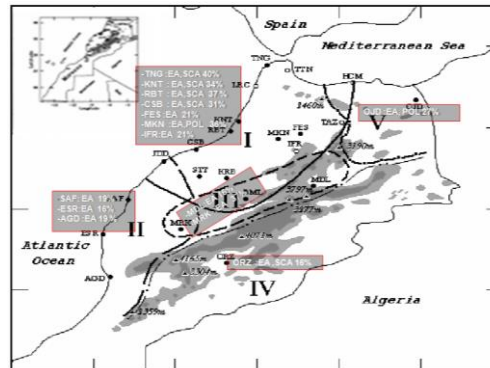
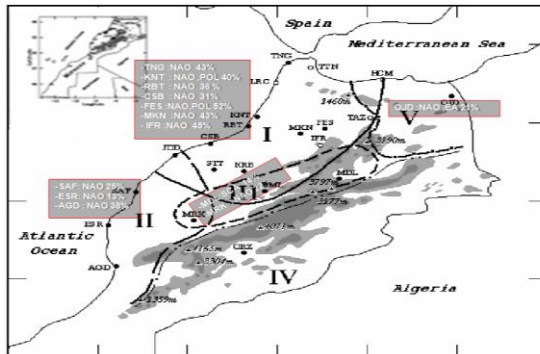


EA

Autumn precipitation



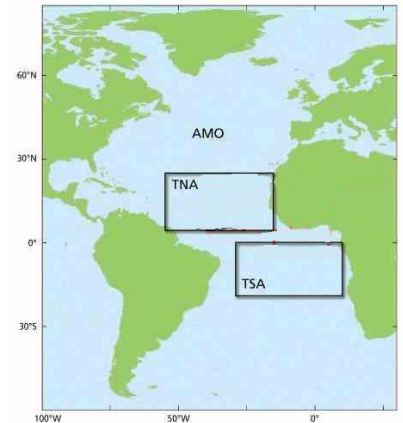
SCAN



NAO have impact with opposite sign over north west Africa

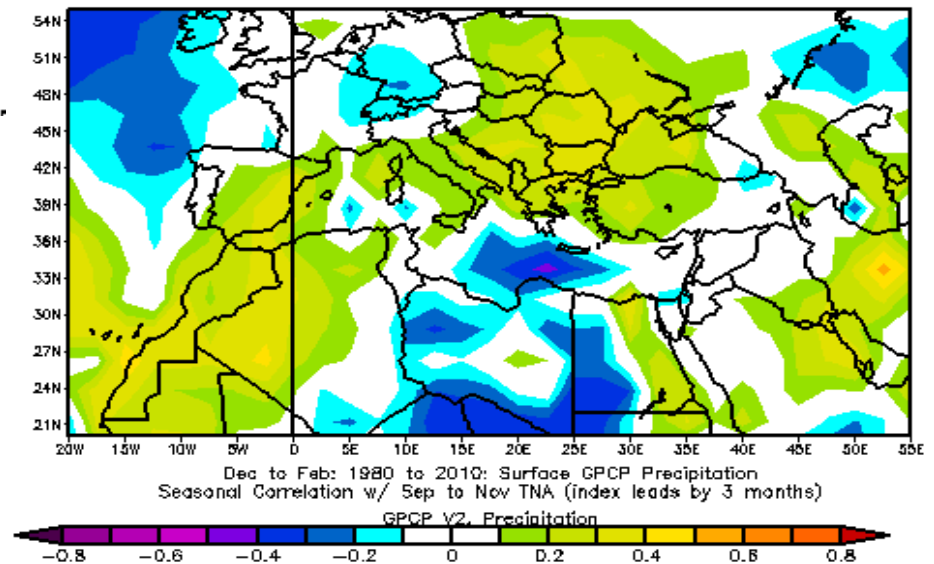
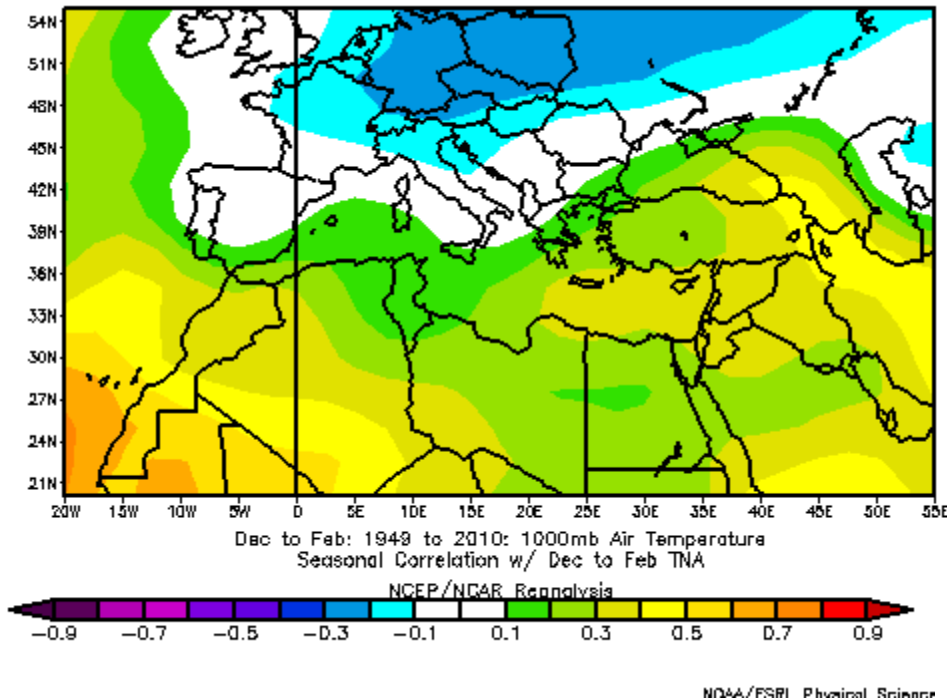
Impact of TNA

Cor(SST-TNA(DJF),T2m(DJF))

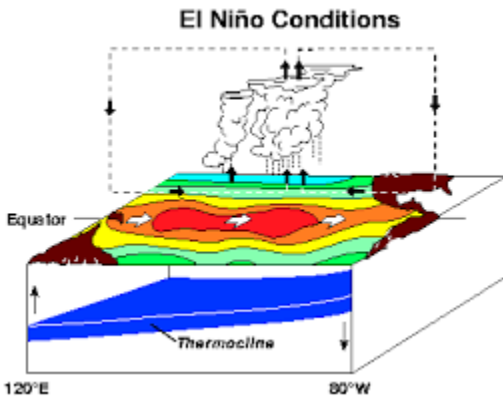


❖ Tropical Northern Atlantic SST (TNA)

Cor(TNA(SON),Precip(DJF))



Impact of ENSO



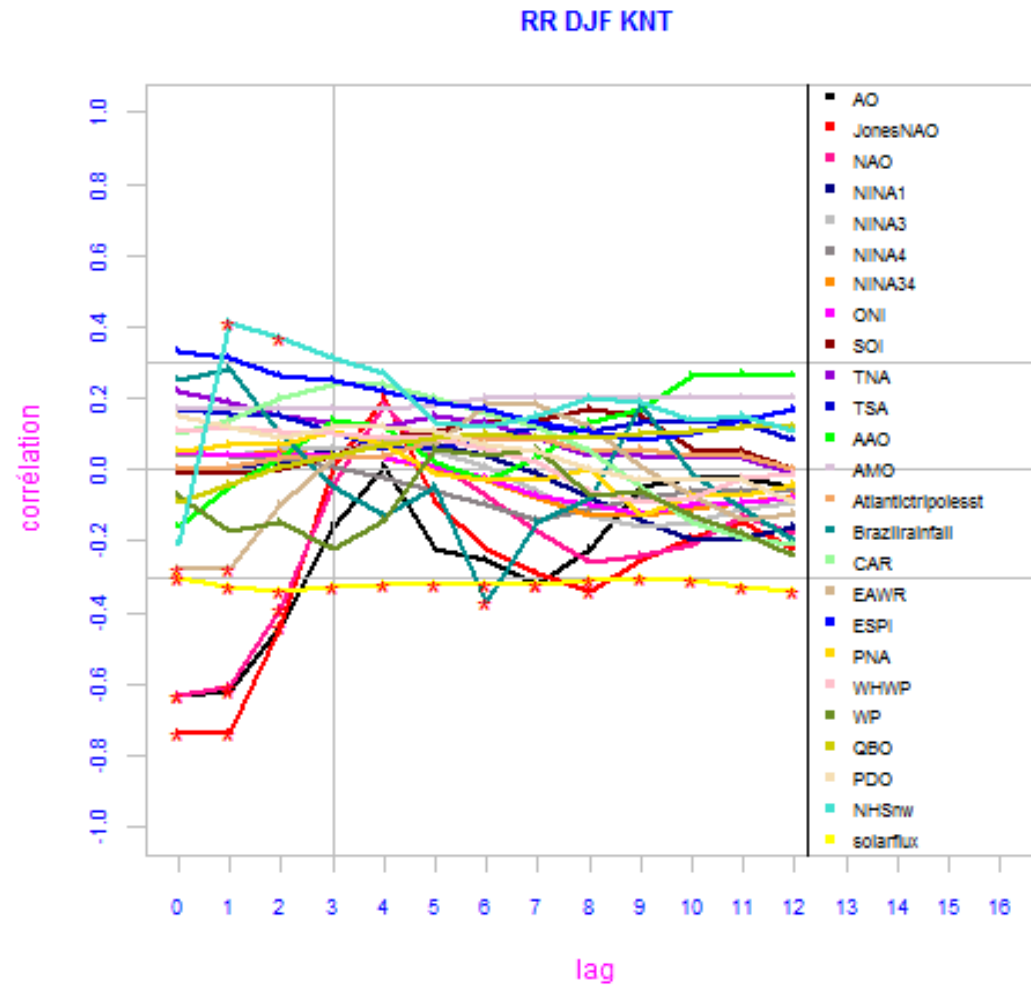
-El-NINO => dry conditions over Morocco on MAM

-La NINA => wet and cold conditions over Morocco on MAM

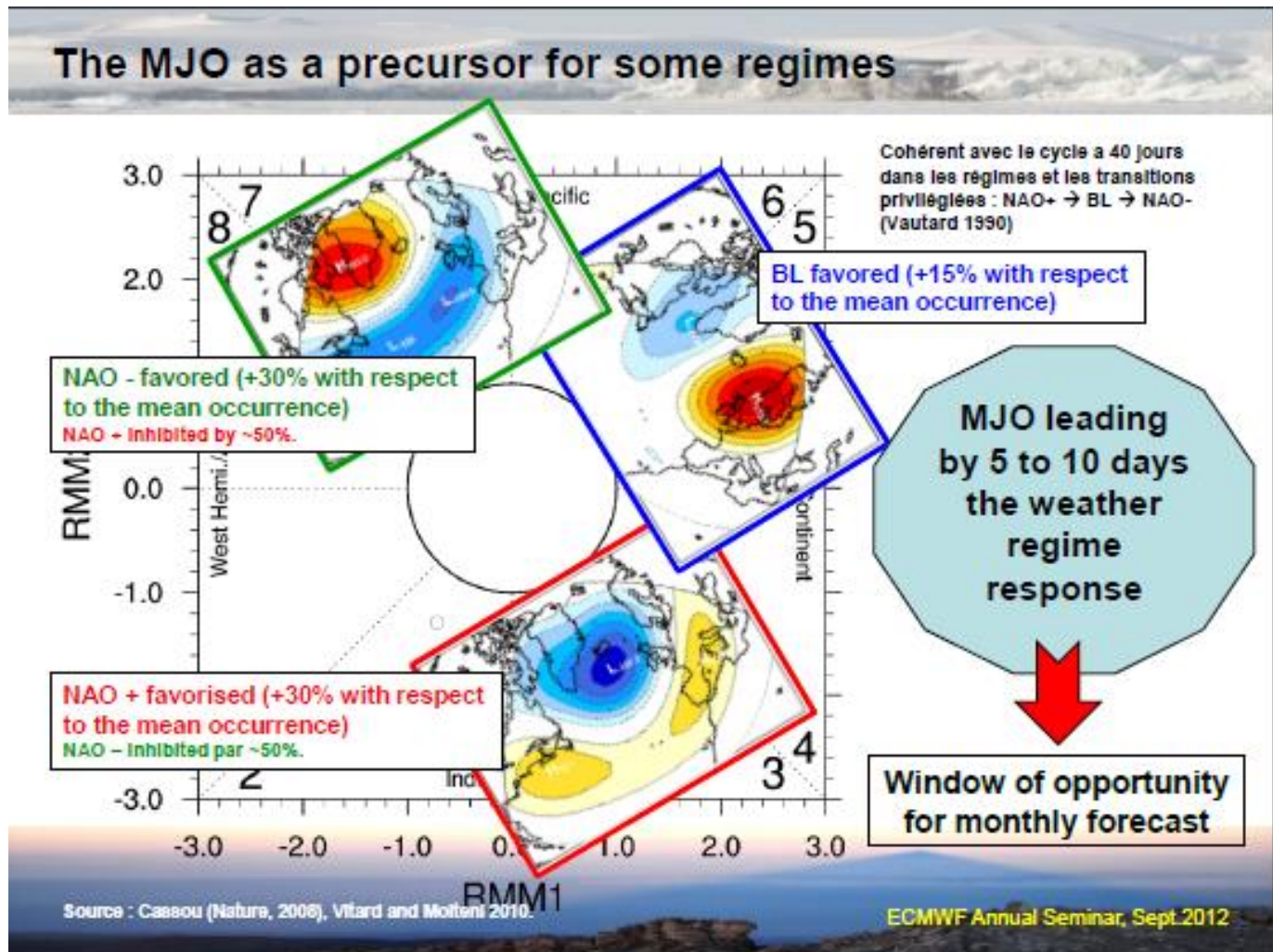
-La NINA => wet conditions over Morocco on DJF

-La NINA => dry conditions over Morocco on SON

Exemple KNT station : Correlation (RRDJF,patterns)



Intra-seasonal pattern



Sources de prévisibilité pour les prévisions saisonnières au Maroc

Précipitations

Téléconnexion	SON	OND	NDJ	DJF	JFM	FMA	MAM	Références
NAO				*	*			-Ward et al, 1999 -Marshall et al,2001 -Trigo et al, 2002 -Rapports internes *Moujane, Badi et Driouech 2010 *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/
SCAN	*	*						-Rapports internes *Moujane, Badi et Driouech 2010 *Ait-hra,Soubai et Kasmi 2013 -Ward presentation 2012 in Tunis
EA			*			*	*	-Rapports internes *Moujane, Badi et Driouech 2010 *Ait-hra,Soubai et Kasmi 2013
AMO	*	*	*	*	*			-Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/
PDO			*	*				-Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/
ENSO	*						*	-Knippertz et al. (2003) -Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://iri.columbia.edu/climate/forecast/enso/index.html
NTA (North tropical atlantique SST)	*				*	*		-Sutton et al., 2001 -Rapport interne *Ait-hra,Soubai et Kasmi 2013 -Ward presentation 2012 in Tunis

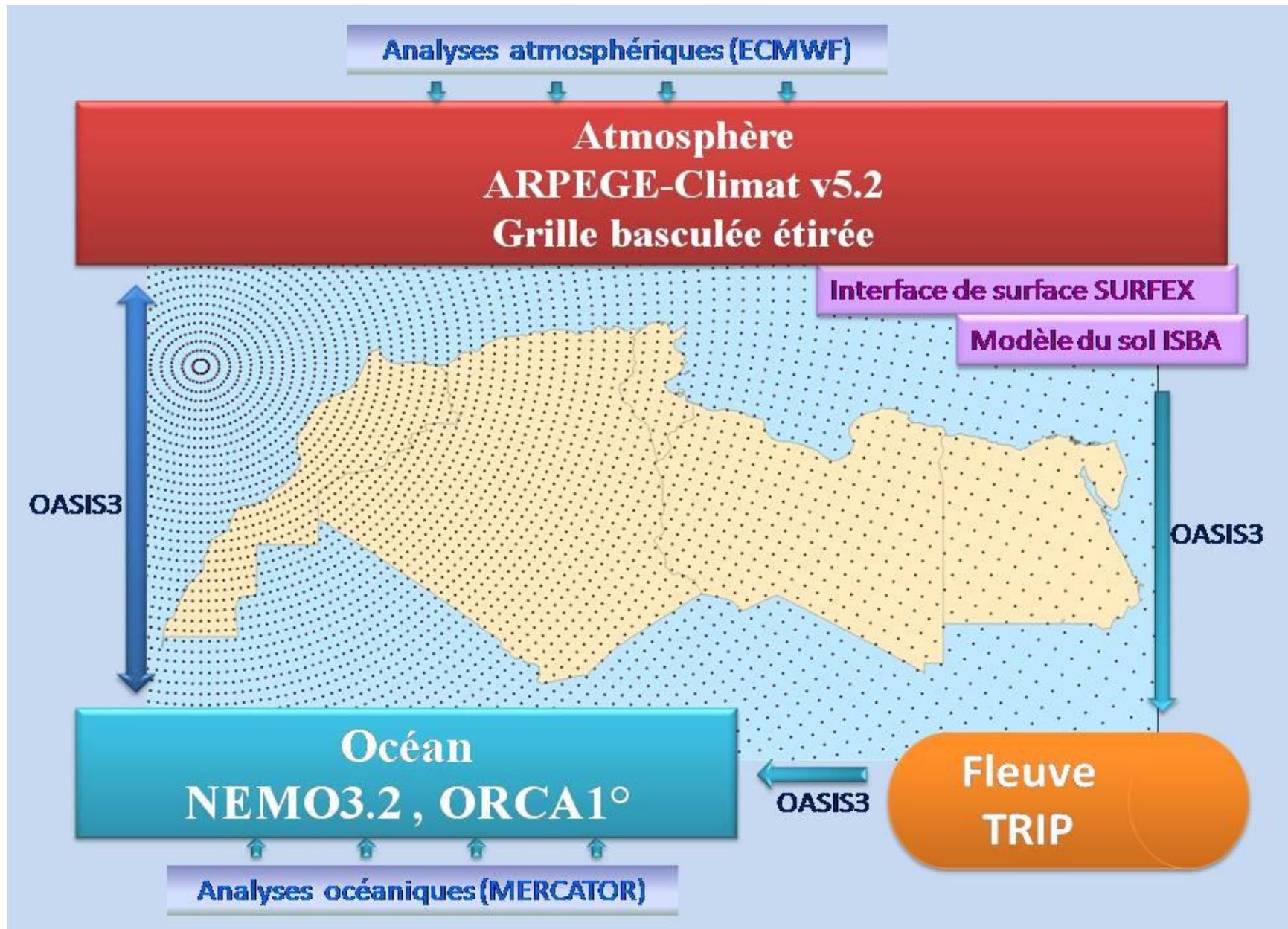
Sources de prévisibilité pour les prévisions saisonnières au Maroc

Températures

Téléconnexion	SON	OND	NDJ	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	Références
NAO		*			*	*	*	*				*	-Ward et al, 1999 Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/ -Ward présentation 2012 in Tunis
SCAN				*									-Rapport interne *Ait-hra,Soubai et Kasmi 2013
EA			*			*	*						-Rapport interne *Ait-hra,Soubai et Kasmi 2013
AMO						*	*	*	*	*			-Mariotti et al, 2012 -Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/
PDO					*	*	*			*	*		-Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://www.esrl.noaa.gov/psd/data/correlation/
ENSO	*						*			*		*	-Rapport interne *Ait-hra,Soubai et Kasmi 2013 http://iri.columbia.edu/climate/forecast/ensoi/index.html
NTA (North tropical atlantique SST)		*	*	*	*	*	*	*					-Rapport interne *Ait-hra,Soubai et Kasmi 2013 -Ward presentation 2012 in Tunis http://www.esrl.noaa.gov/psd/data/correlation/
Mediterranean SST										*			*Mariotti et al, 2012

Dynamical forecast

Operational system of seasonal forecast at Maroc-Météo



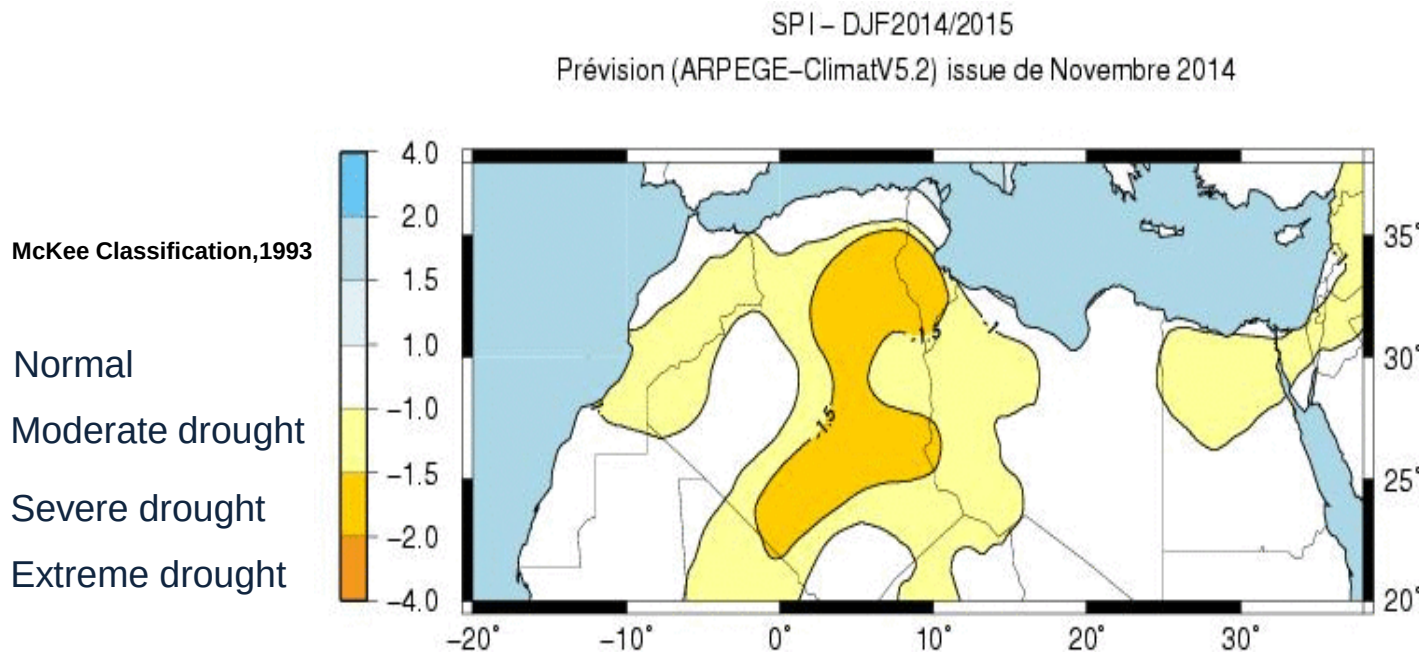
Let's move now to more detail on LRF products and outlook in web site of
RCC-North Africa

<http://rccnara1.marocmeteo.ma>

Drought Forecasting : SPI Index

Why the SPI ?

- Recommended by WMO for meteorological drought
- Many weather services and stakeholders know about the SPI.
- Only based on monthly precipitation (model / observations);
- Can be calculated for different accumulation periods(3, 6 or 12)



- The calculation of SPI is based on monthly precipitation issued from ARPEGE-Climat V5.2.
- Seasonal forecasts: 4 months lead time, issued once per month.
- Hindcast: 1991 to 2010

With thanks to **E.DUTRA**(ECMWF), **W.BADI**(DMN)&**F.DRIOUECH**(DMN)



Thanks and welcome to Marrakech

