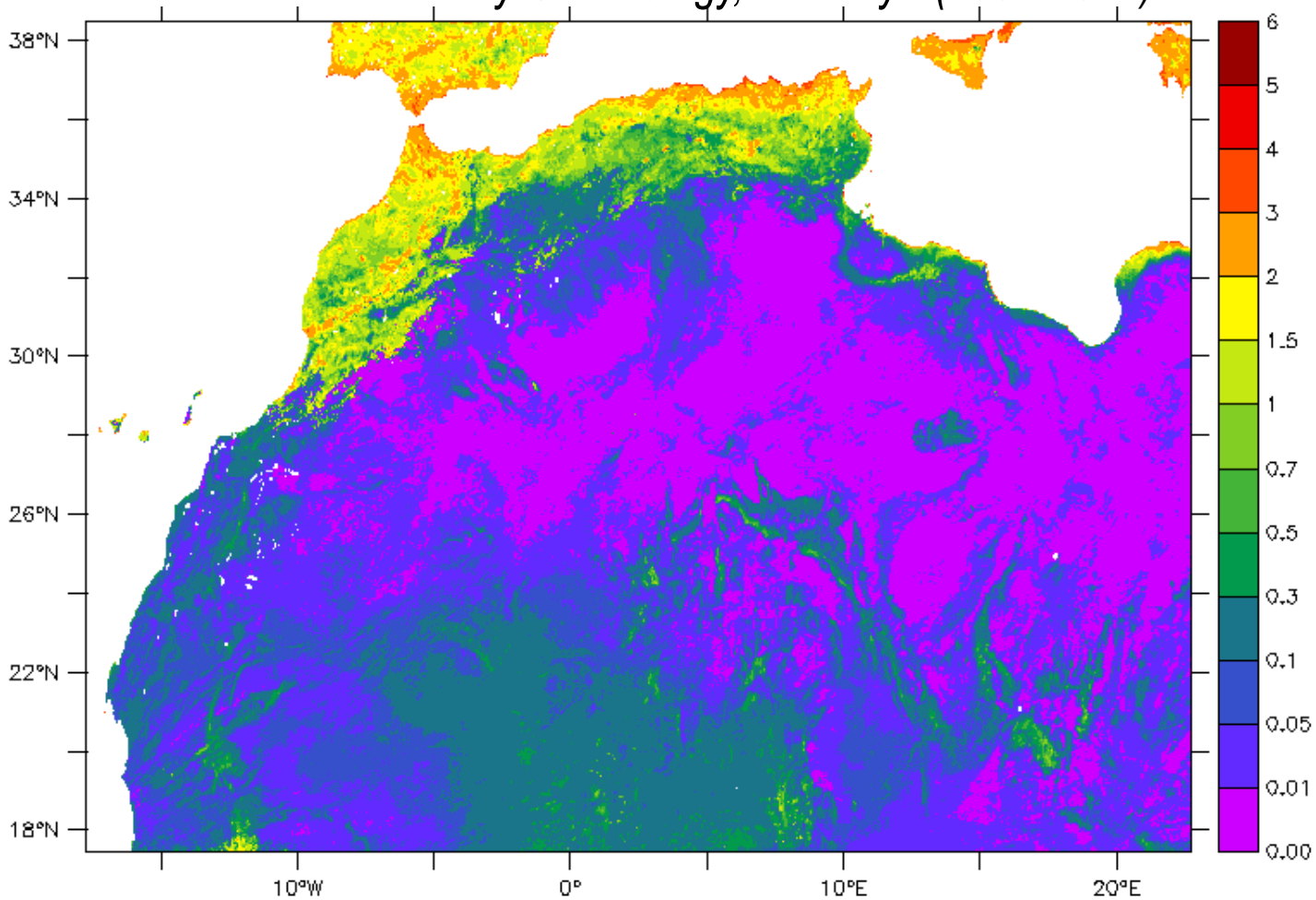
ET SET 2: Evapotranspiration

Kunhikrishnan Thengumthara
03/24/2014

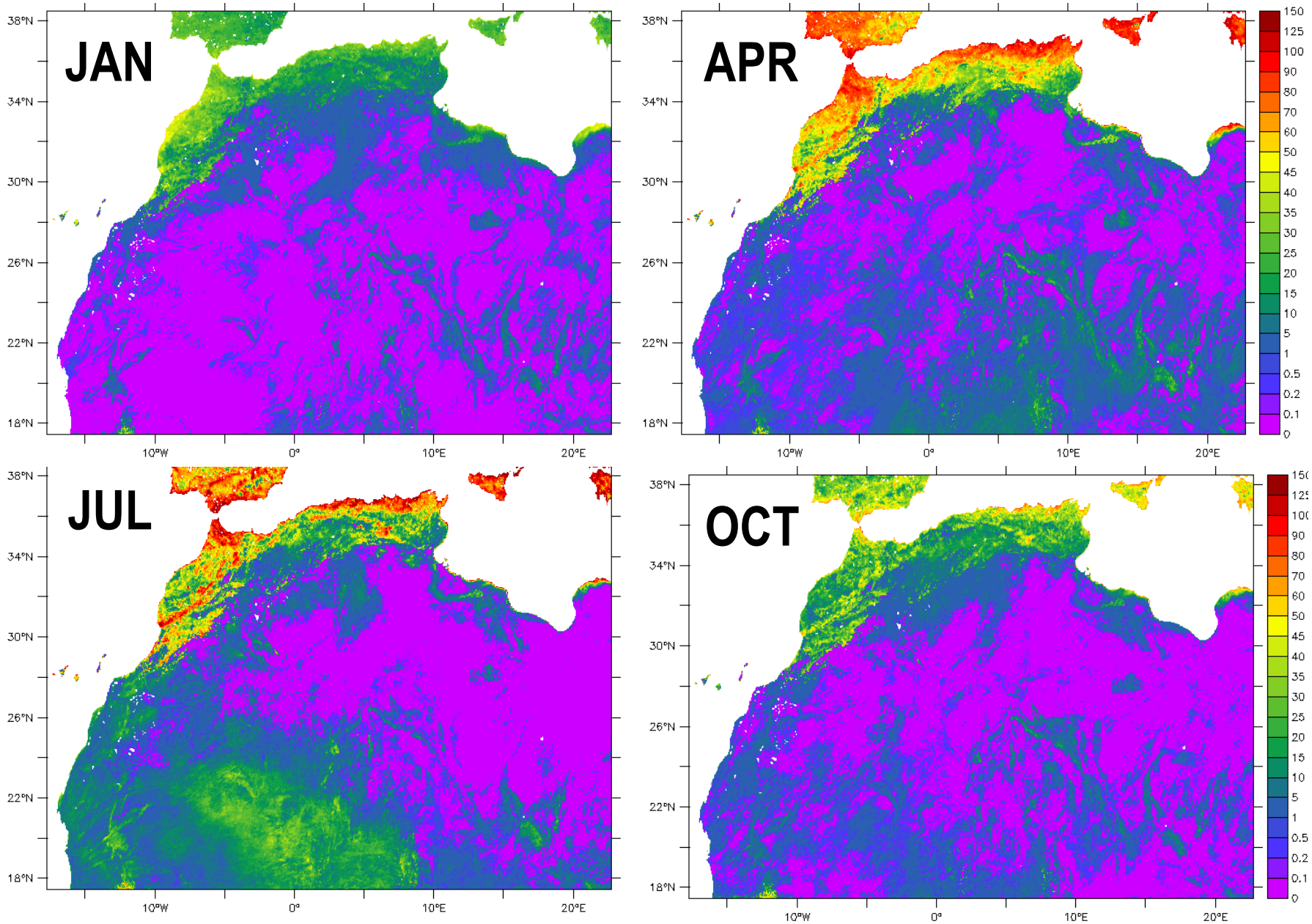
ET01

ALEXI-ET Mean daily Climatology, mm.day^{-1} (2007-2012)



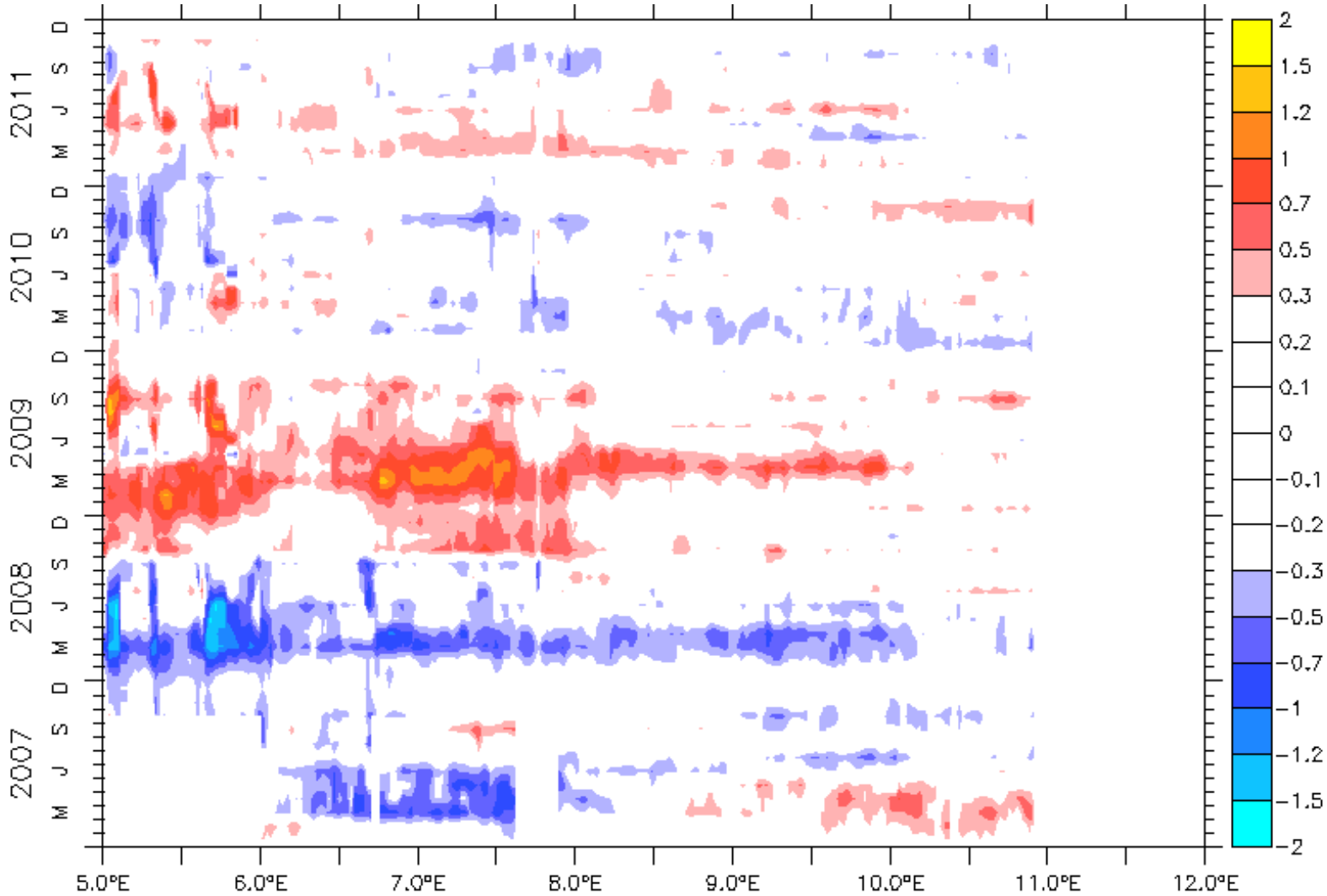
ET02

MENAW, mean monthly (mm/month) ALEXI ET Climatology (2007-2011)



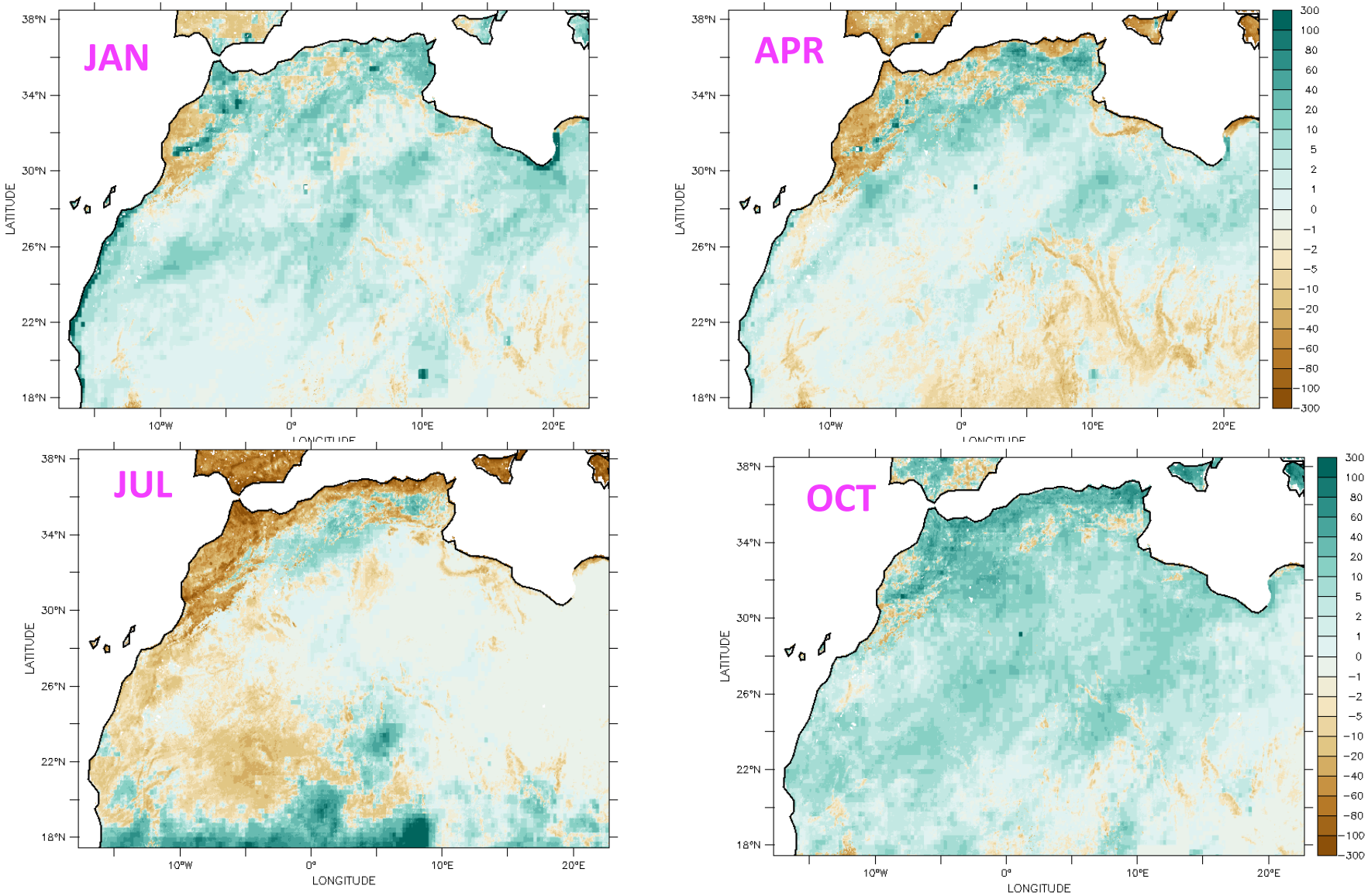
ET03

ALEXI-ET Anomaly Hovmuller plot (35N) (mm/day) from LT Mean (2007-2011) for Medjerda



ET04

Seasonal Water Balance from Space: A first order check (P-E), TMPA-RT- ALEXI-ET, (Data source: Climatology based on daily 2007-2011) (mm/month)

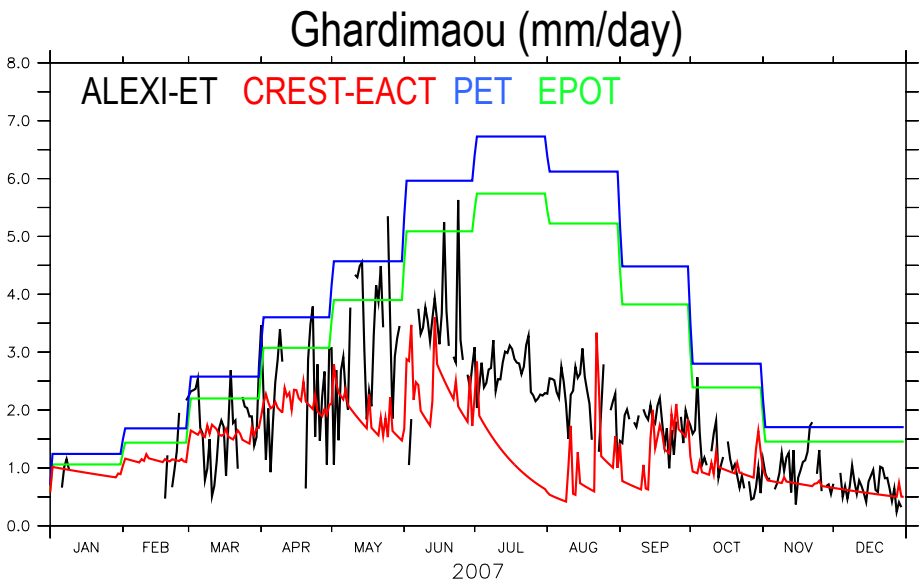


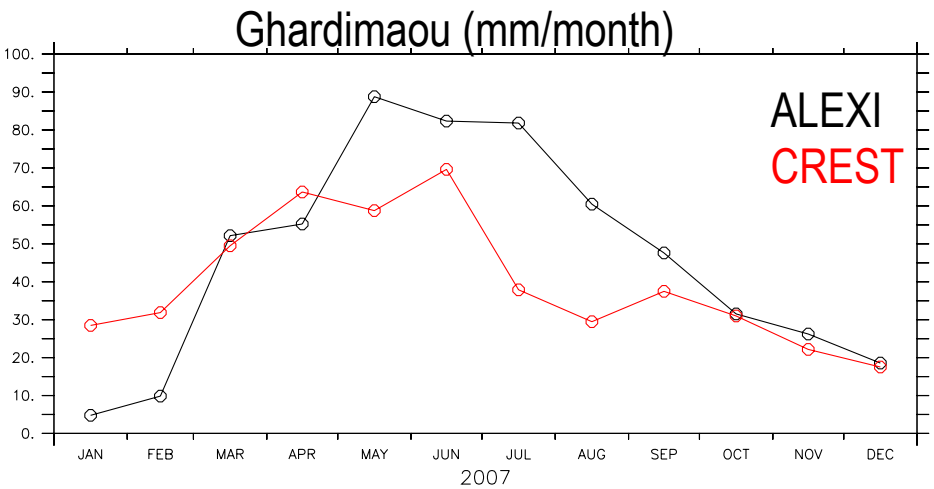
Tunisia Medjerda Stations Locations

Station	LAT (°N)	LON (°E)
SLOUGUIA	36.57	9.52
GHARDIMAOU	36.45	8.44
BOU SALEM	36.6	8.97
MELLEGUE	36.41	8.75
SERS VILLE	36.07	9.03
DAHMANI	35.94	8.83
JENDOUBA	36.5	8.78

ET05

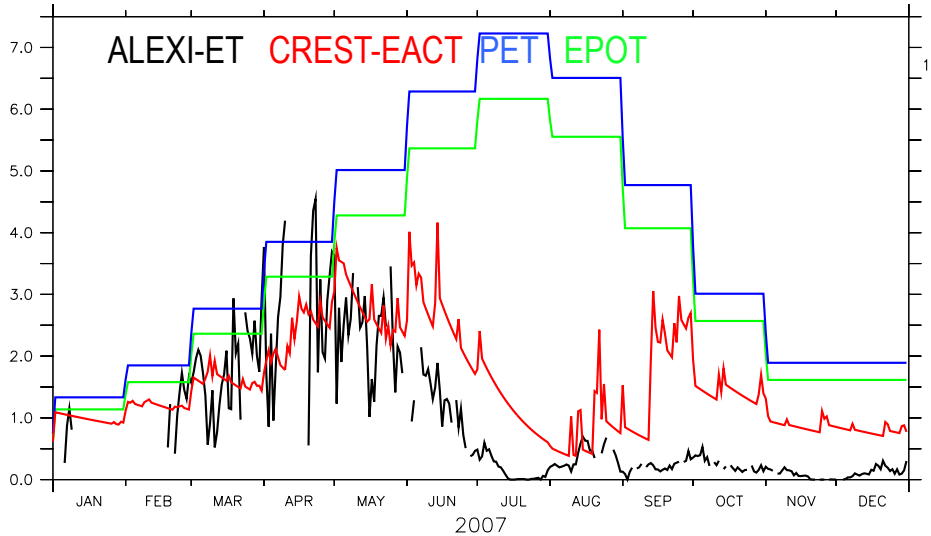
Daily and monthly ET based on CREST and ALEXI-ET

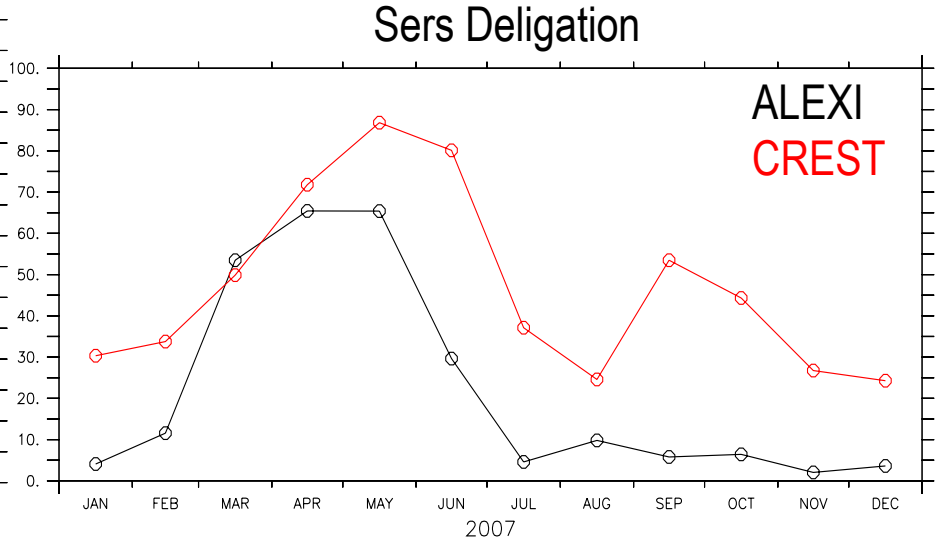




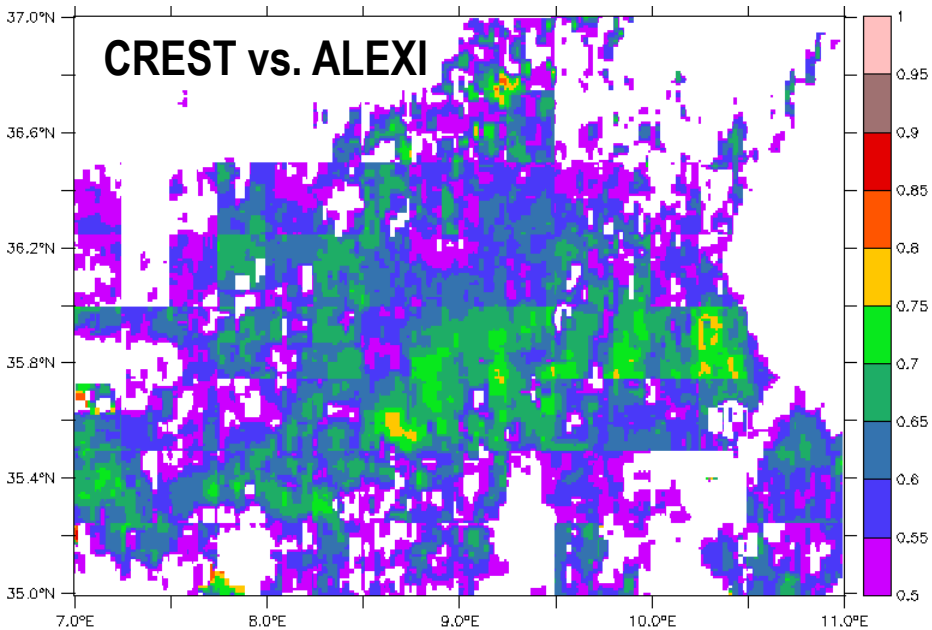
PET: Bibimo (Monthly Climatology)
*EPOT=PET*KE KE: conversion factor for PET to local Actual ET*
EACT :CREST model simulated AET

Sers Deligation *(36.07N, 9.02E)*

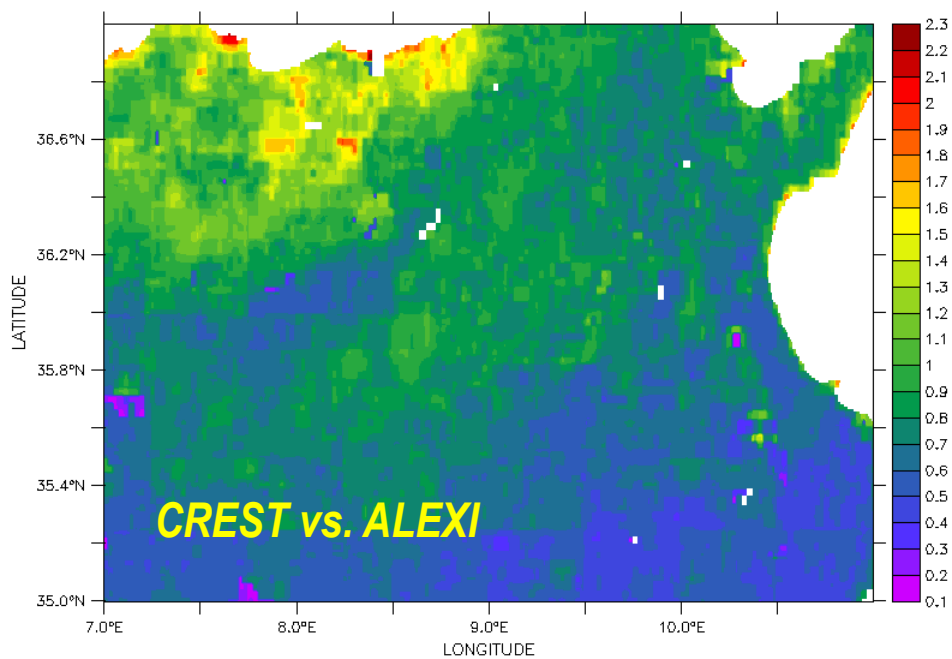




ET06

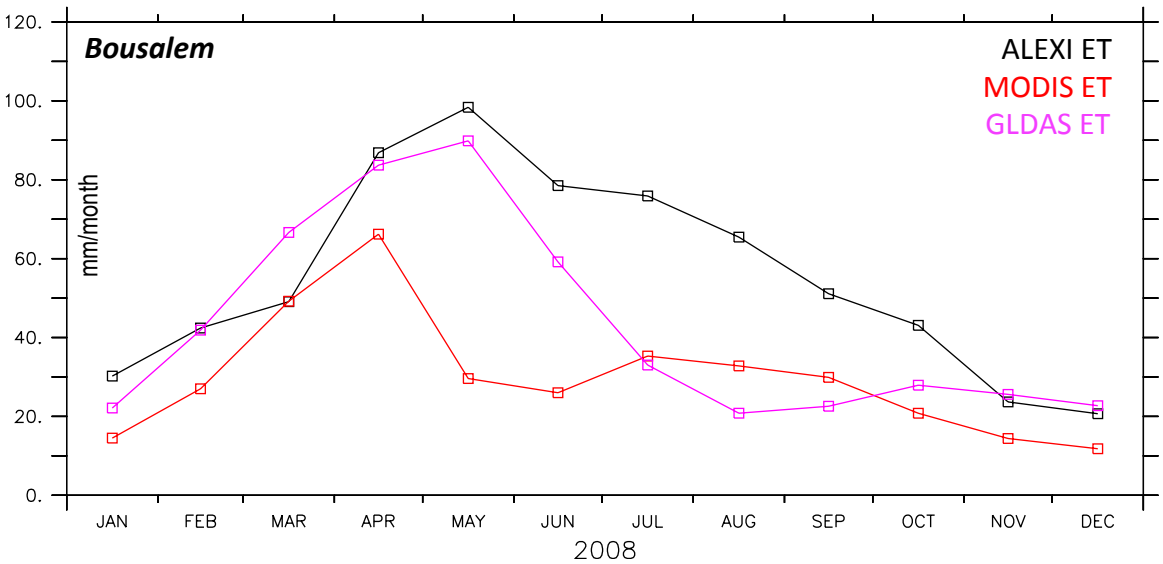


Spatial .Correlation
(plotted only r >0.5)
r: correlation coefficient



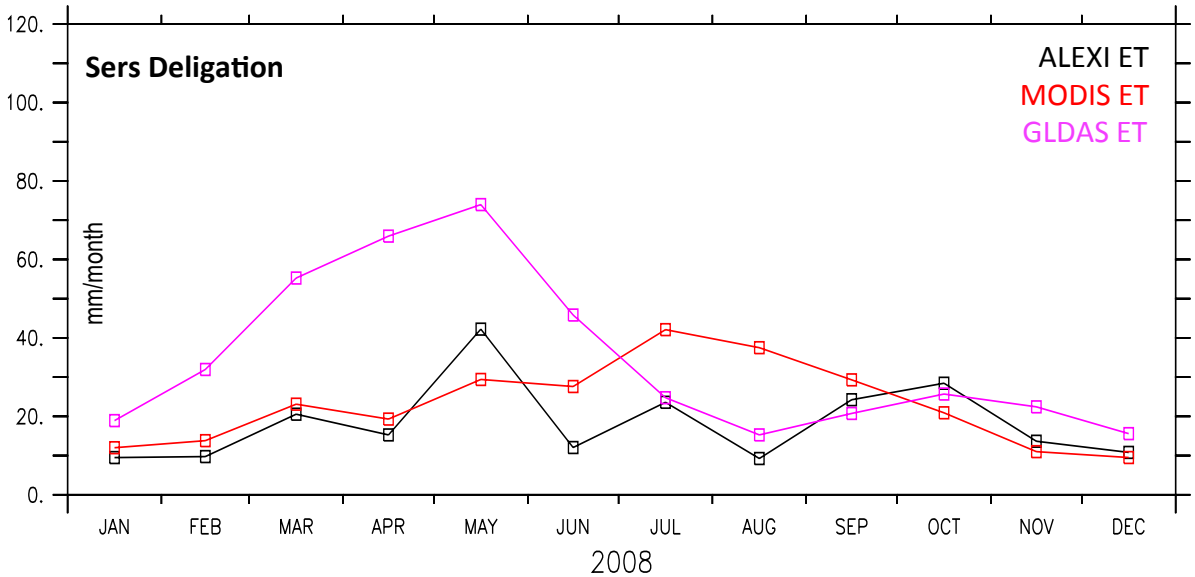
RMS Errors (0.1-2.3 mm)

ET07

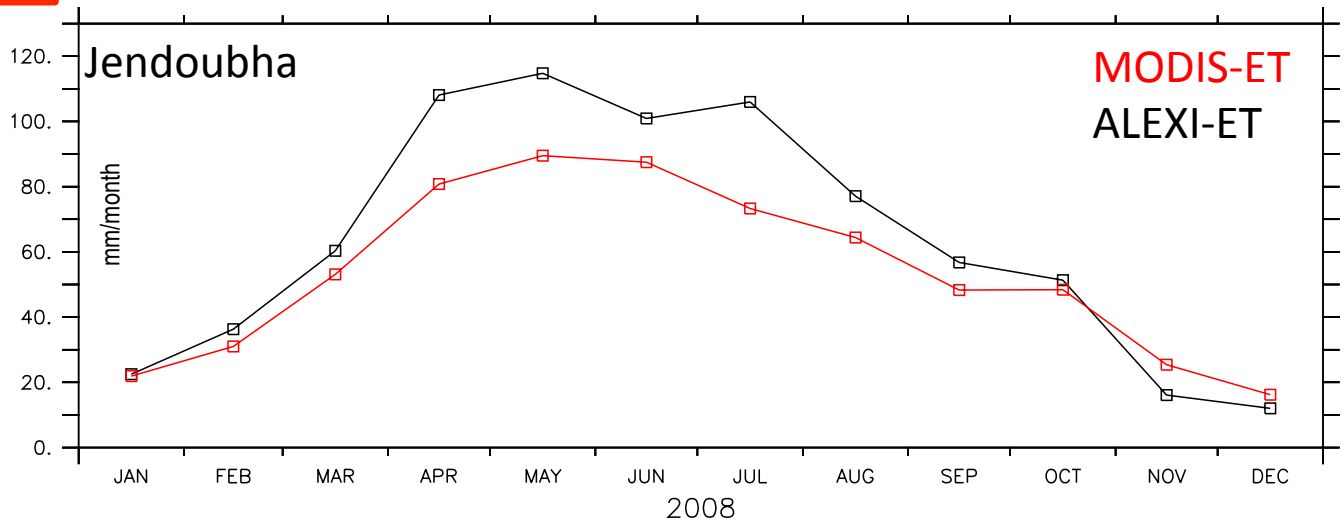


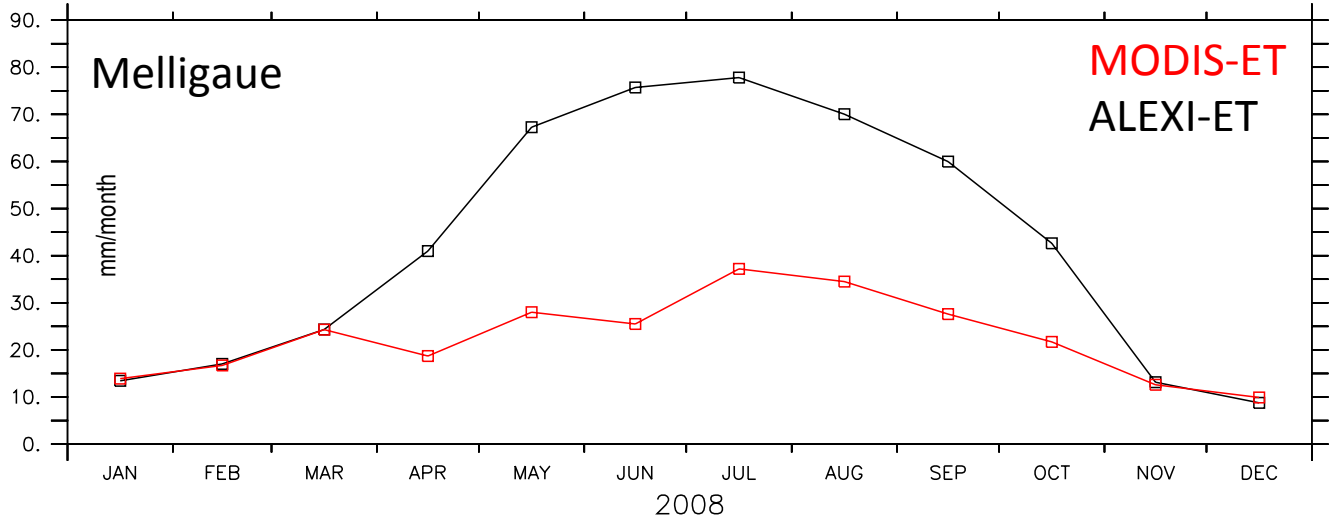
ALEXI: Thermal Remote Sensing based on GOES hourly (5-10km)

MODIS16 ET-EP algorithm (PM method)
uses MERRA Reanalysis

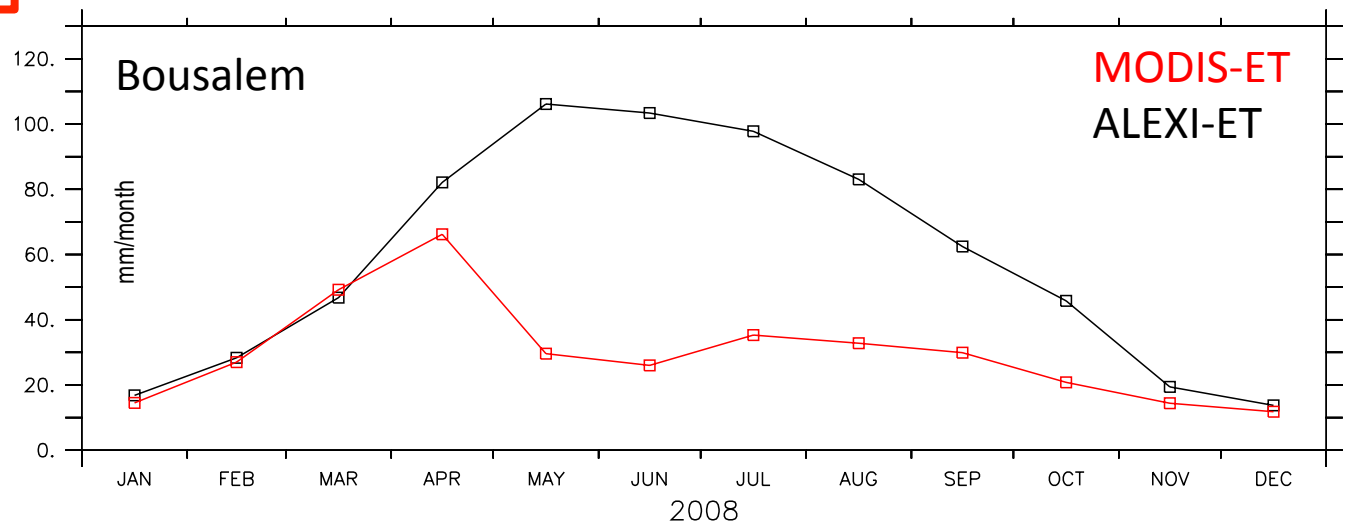


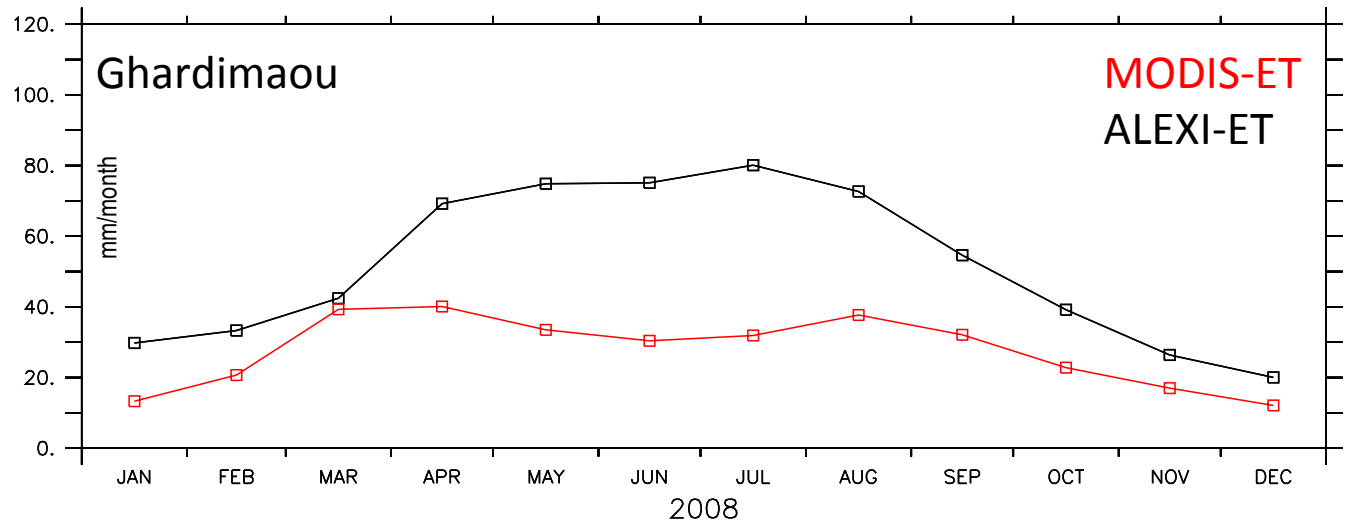
ET08


Jendoubha
MODIS-ET
ALEXI-ET
mm/month
120.
100.
80.
60.
40.
20.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

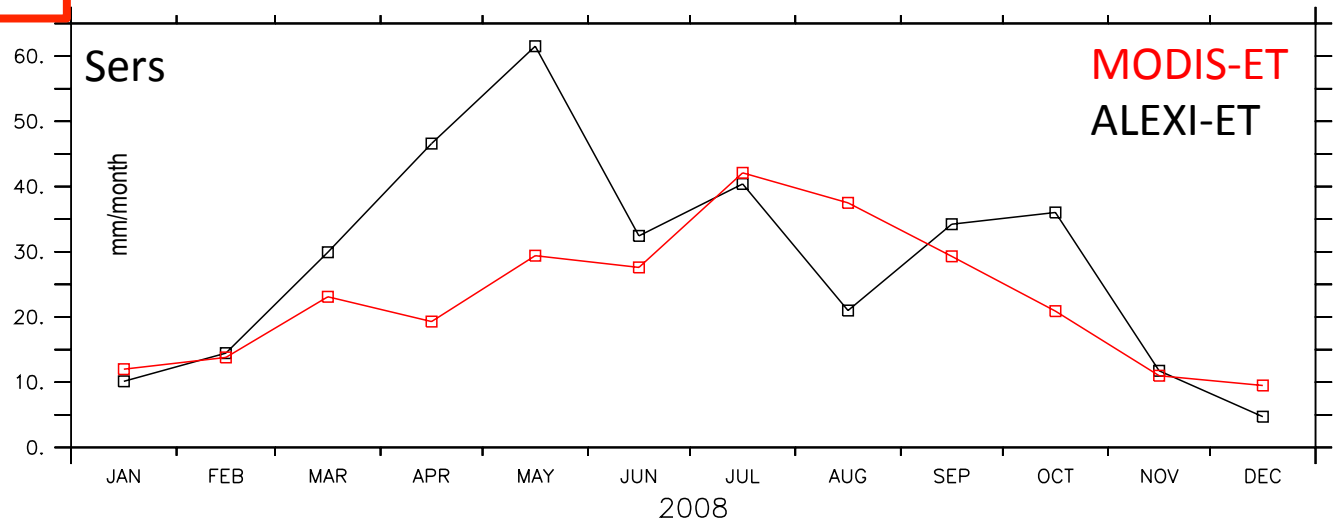

Melligaue
MODIS-ET
ALEXI-ET
mm/month
90.
80.
70.
60.
50.
40.
30.
20.
10.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

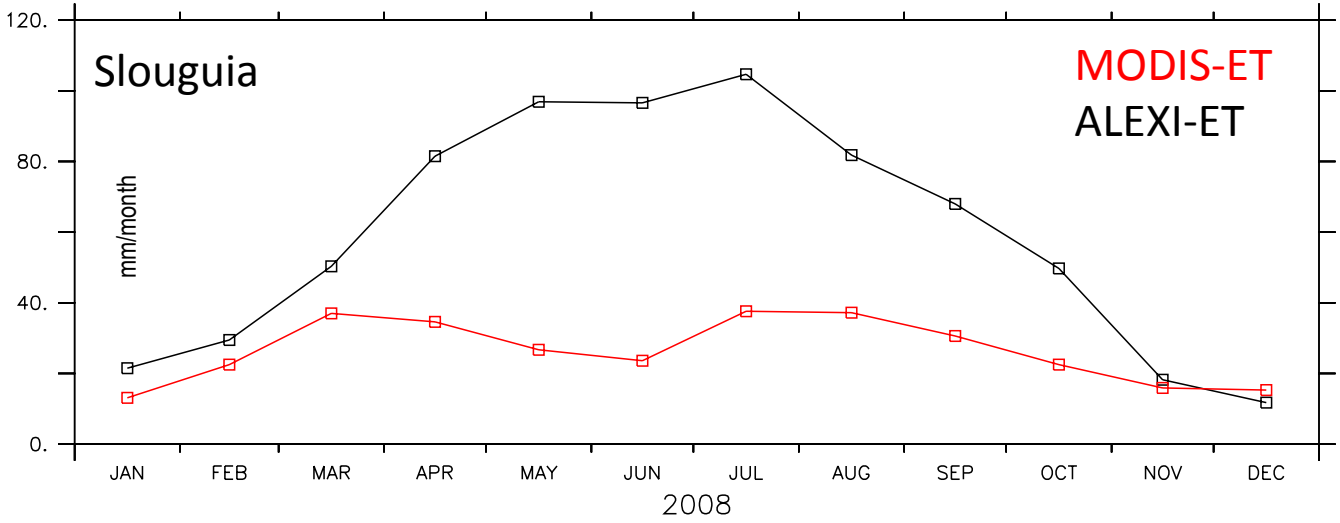
ET09


Bousalem
MODIS-ET
ALEXI-ET
mm/month
120.
100.
80.
60.
40.
20.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

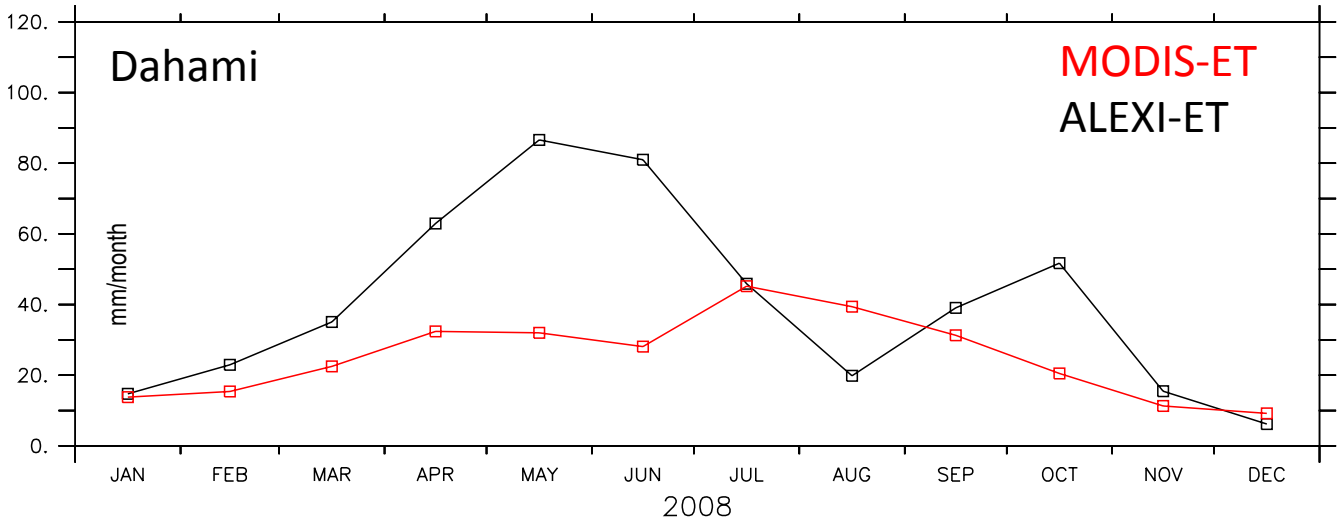

Ghardimaou
MODIS-ET
ALEXI-ET
mm/month
120.
100.
80.
60.
40.
20.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

ET10


Sers
MODIS-ET
ALEXI-ET
mm/month
60.
50.
40.
30.
20.
10.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

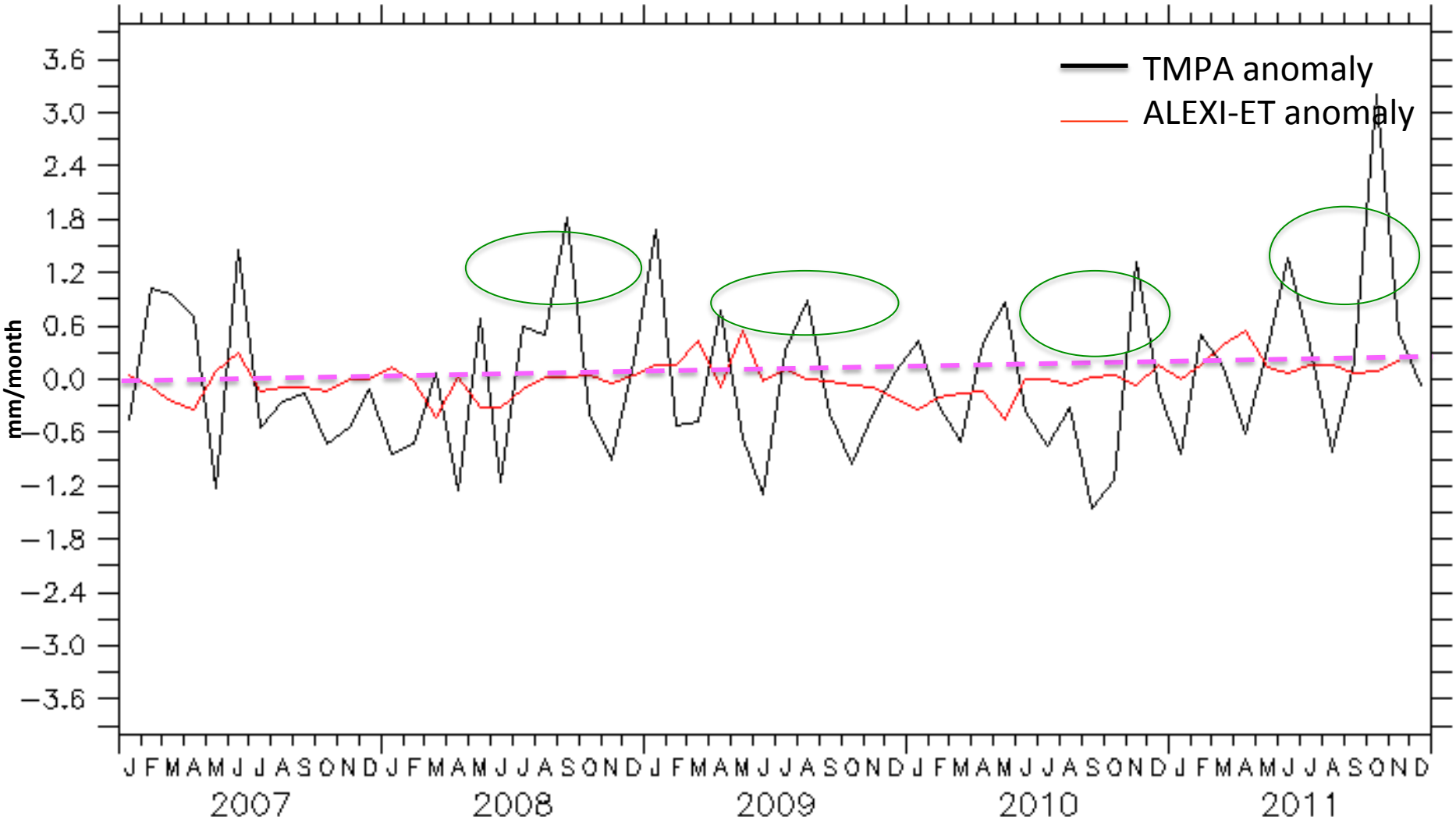

Slouguia
MODIS-ET
ALEXI-ET
mm/month
120.
80.
40.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

ET11


Dahami
MODIS-ET
ALEXI-ET
mm/month
120.
100.
80.
60.
40.
20.
0.
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
2008

ET12

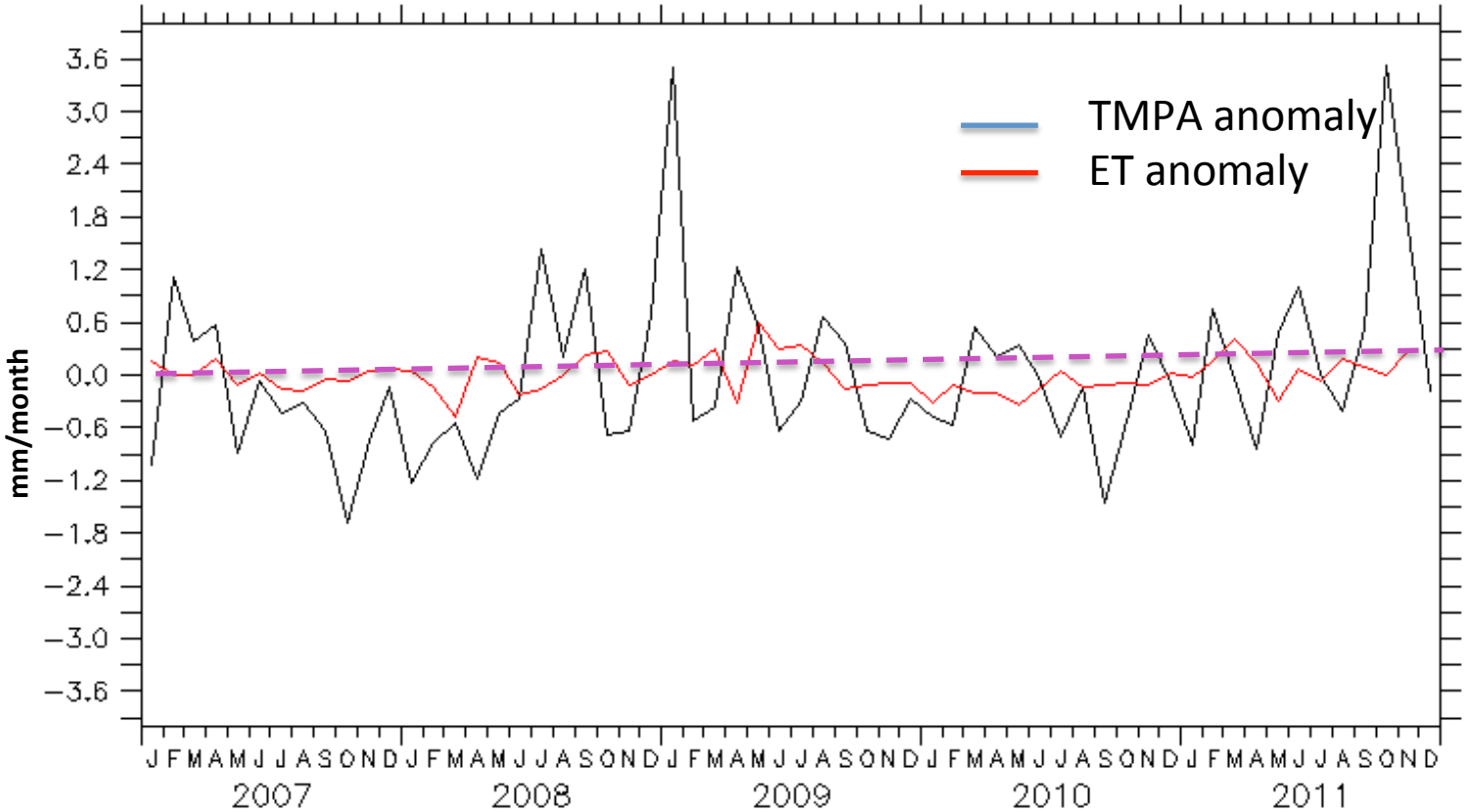
TMPA(3B42RT-V7R2), ALEXI-ET anomalies based on Long Term Mean (2007-2011) Ghardimaou



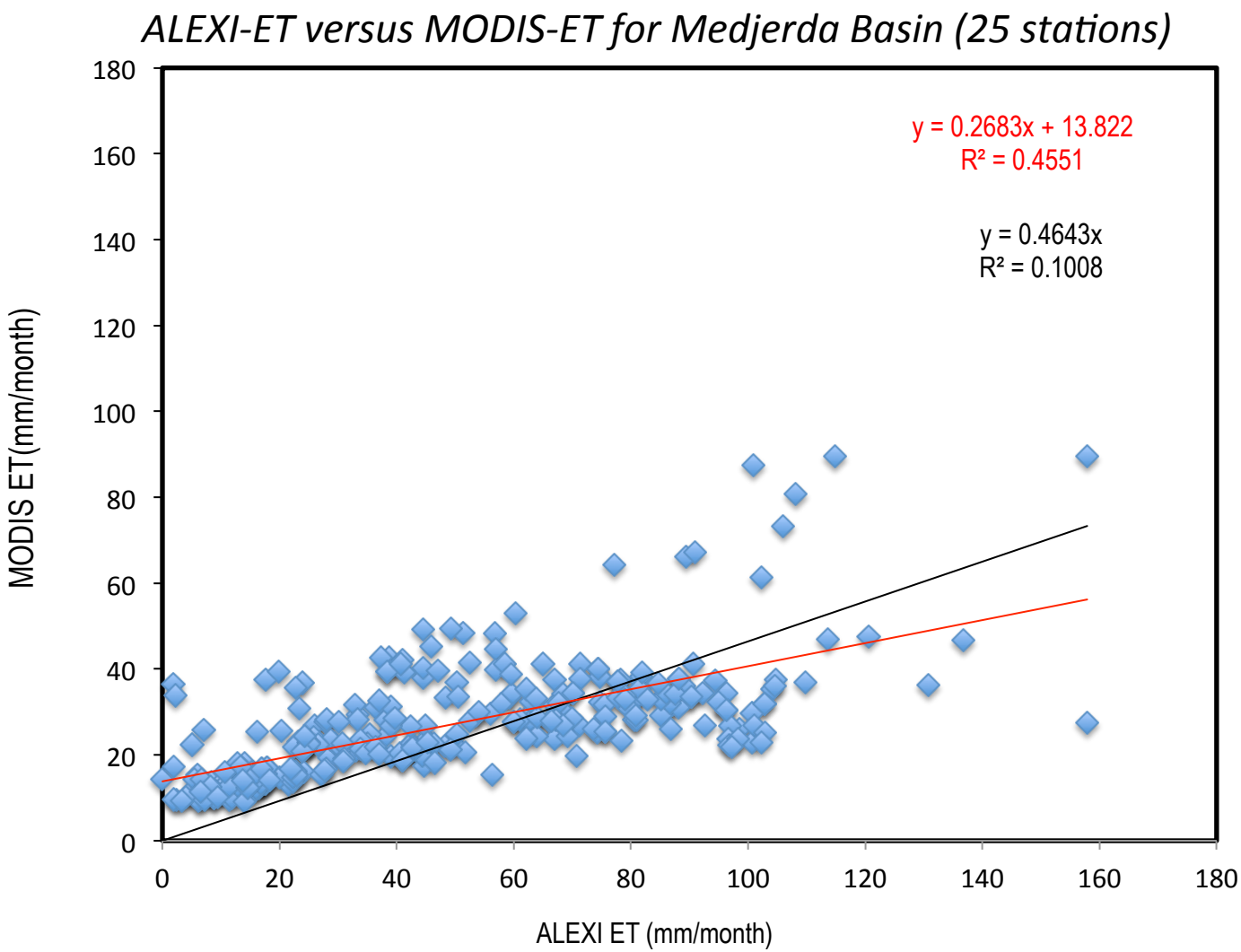
ET13

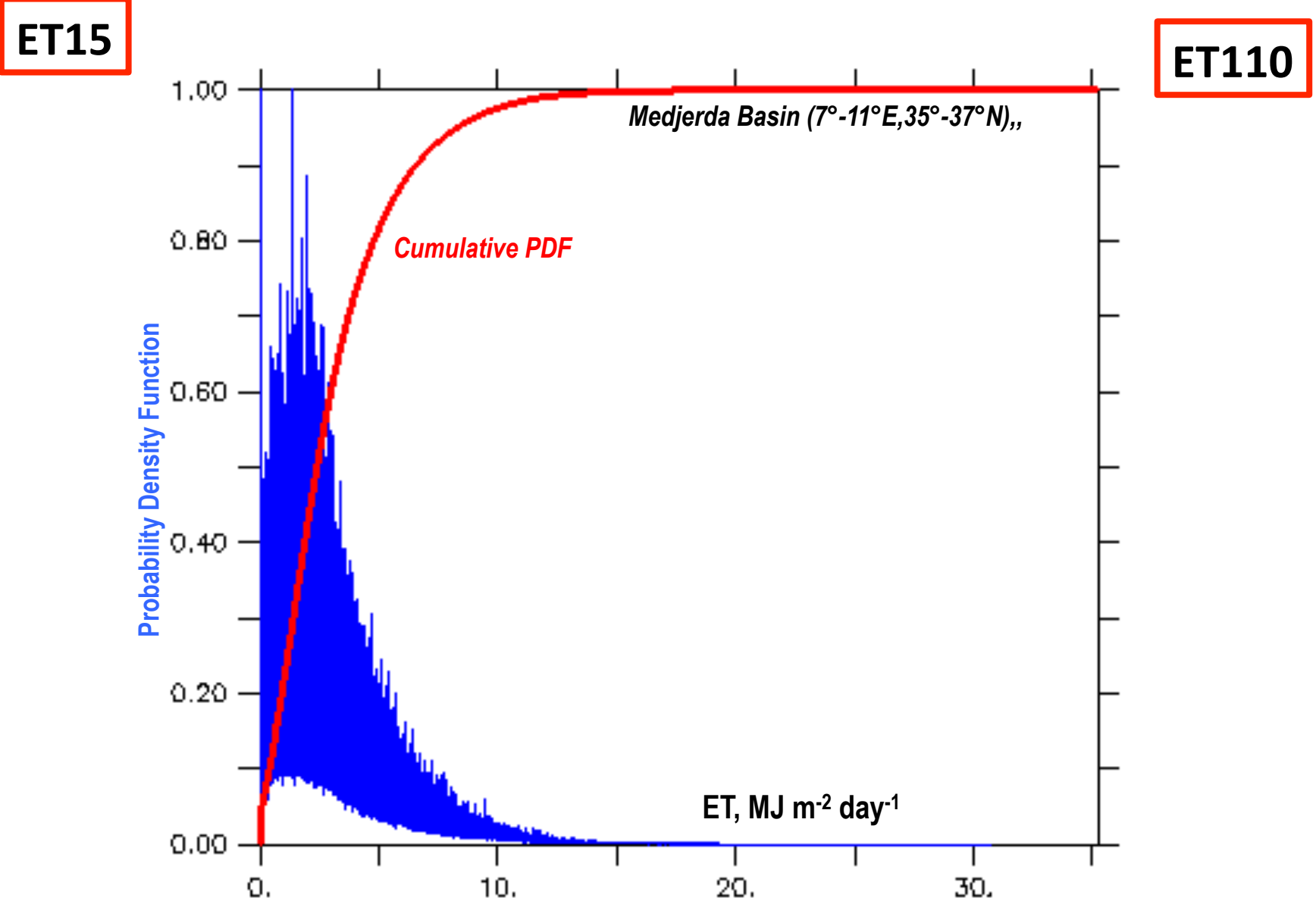
TMPA(3B42-RTV7R2), ALEXI-ET anomalies based on Long Term Mean (2007-2011)

Bousalem



ET14


ALEXI-ET versus MODIS-ET for Medjerda Basin (25 stations)
y = 0.2683x + 13.822
R² = 0.4551
y = 0.4643x
R² = 0.1008
MODIS ET(mm/month)
ALEXI ET (mm/month)
0
20
40
60
80
100
120
140
160
180



Probability distribution functions (PDF, CDF) of ALEXI-ET for Medjerda for 2007
Data source: Daily ALEXI ET

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T Kunhikrishnan, F. S. Policelli, S. Habib, J. L. David, K. A. Melocik, G.J.Huffman, M. C. Anderson, A.B.H.Ali, S. Bacha, and E. R. Ahmed: 2014, Monitoring and Forecasting Floods over North Africa based on Satellite data: Uncertainties and Challenge, Session on Remote sensing application to Hydrology, 28th conference on Hydrology, AMS annual meeting, Atlanta, GA., https://ams.confex.com/ams/94Annual/webprogram/Paper241363.html