

5/10/10



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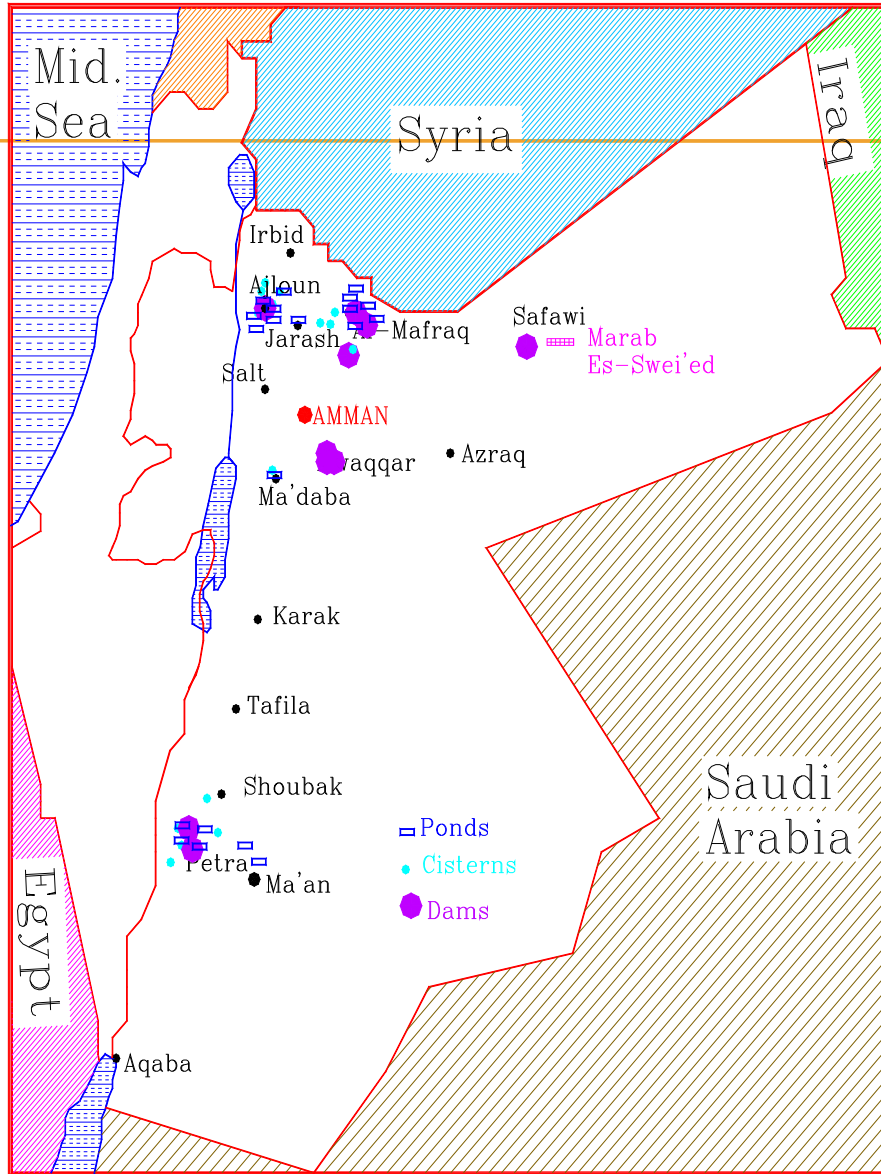
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**Mediterranean**



# Jordan

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- ✘ Jordan is a country with scarce water resources.
- ✘ The most important critical factors are low and irregular rainfall.
- ✘ The total land area of Jordan is about 90,000 square kilometers, which receives on the average an estimated 8.4 billion cubic meter of water.
- ✘ Most of the area (about 90%) receives less than 200 mm

# Topography of Jordan regions

Low land

1350m

Badia and desert

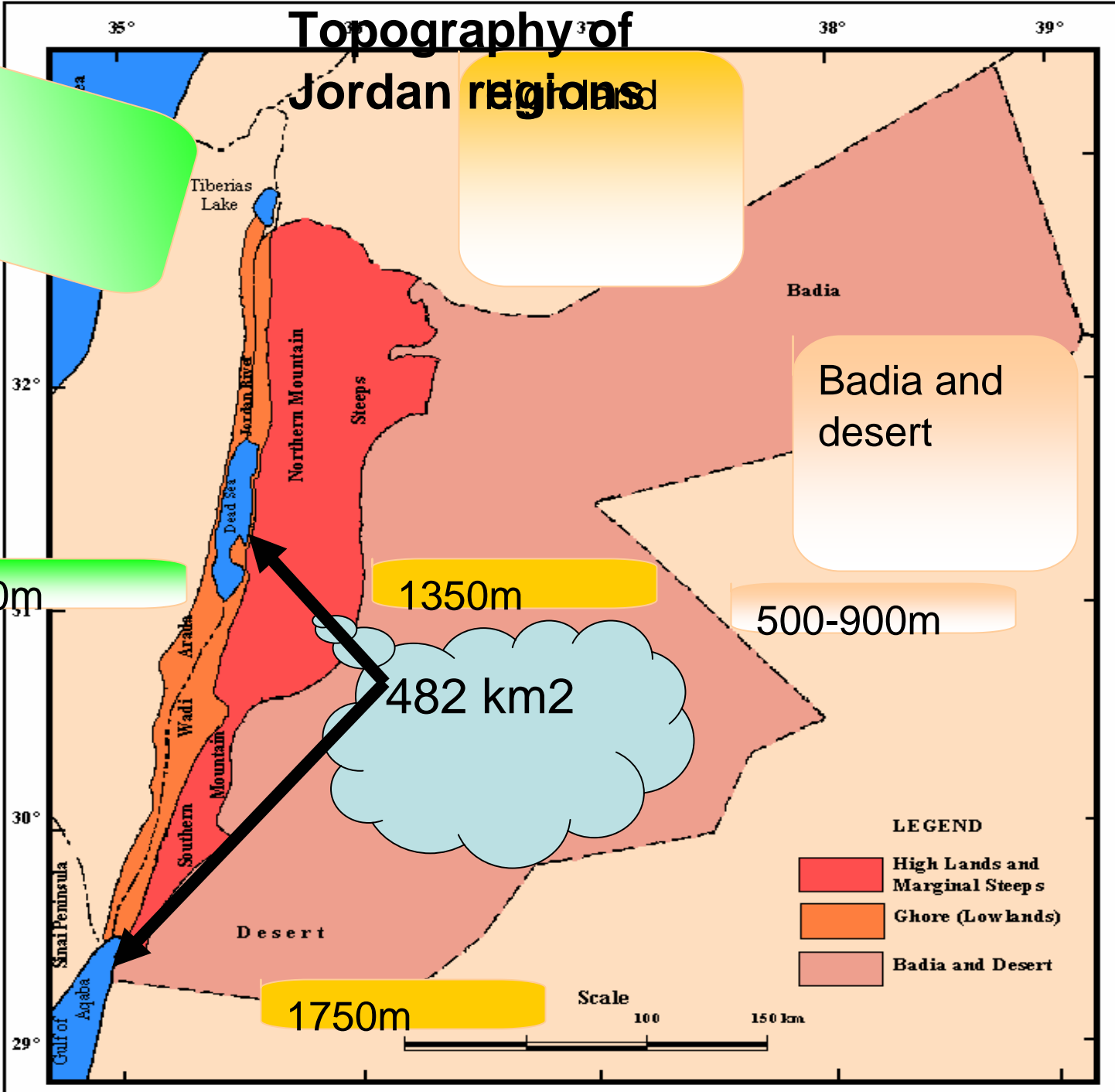
-400m

1350m

500-900m

482 km<sup>2</sup>

1750m



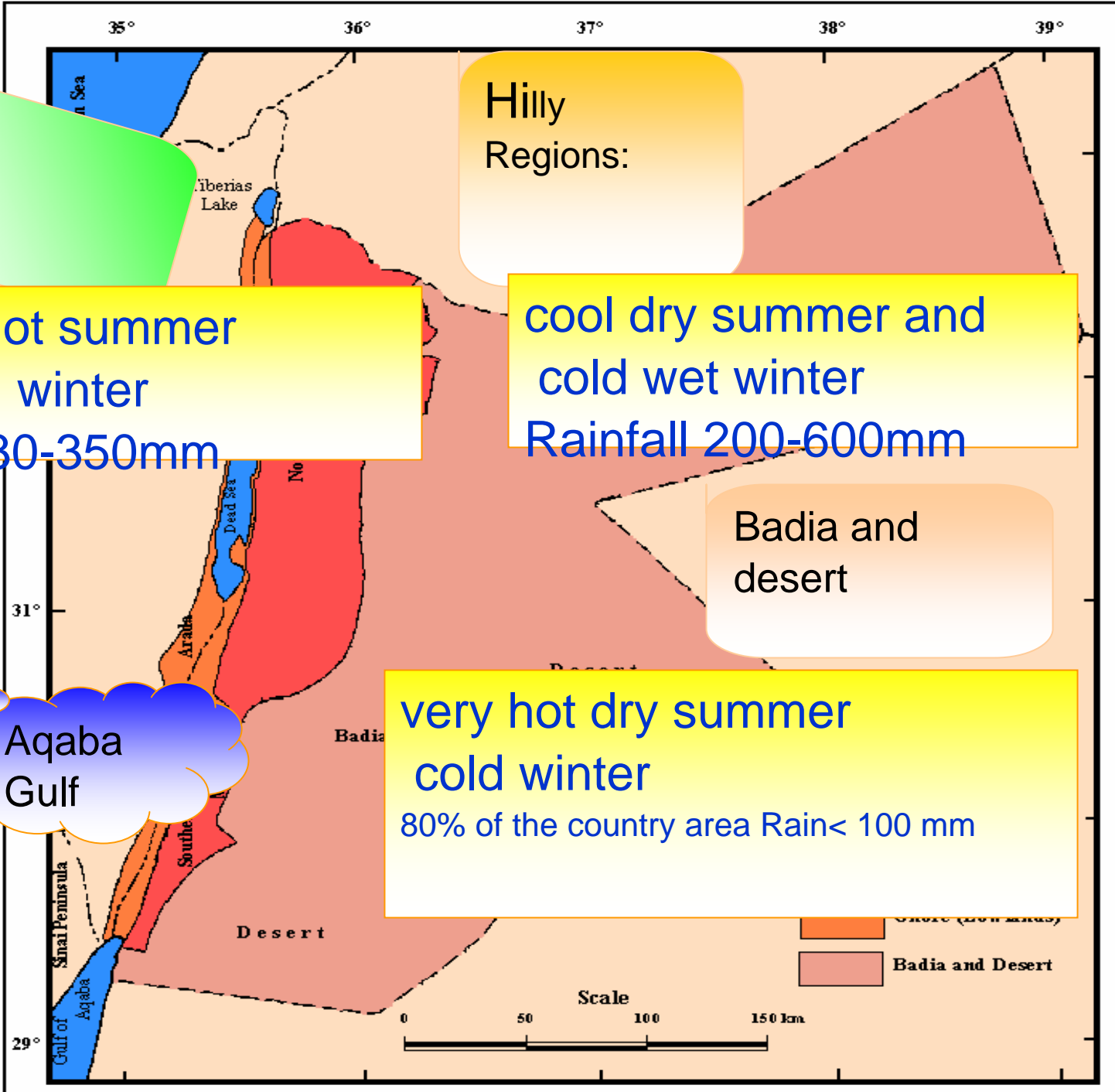
## LEGEND

- High Lands and Marginal Steeps
- Ghore (Lowlands)
- Badia and Desert

Scale

100

150 km



Low land

Hilly Regions:

very hot summer  
warm winter  
Rain 30-350mm

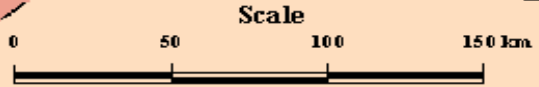
cool dry summer and cold wet winter  
Rainfall 200-600mm

Badia and desert

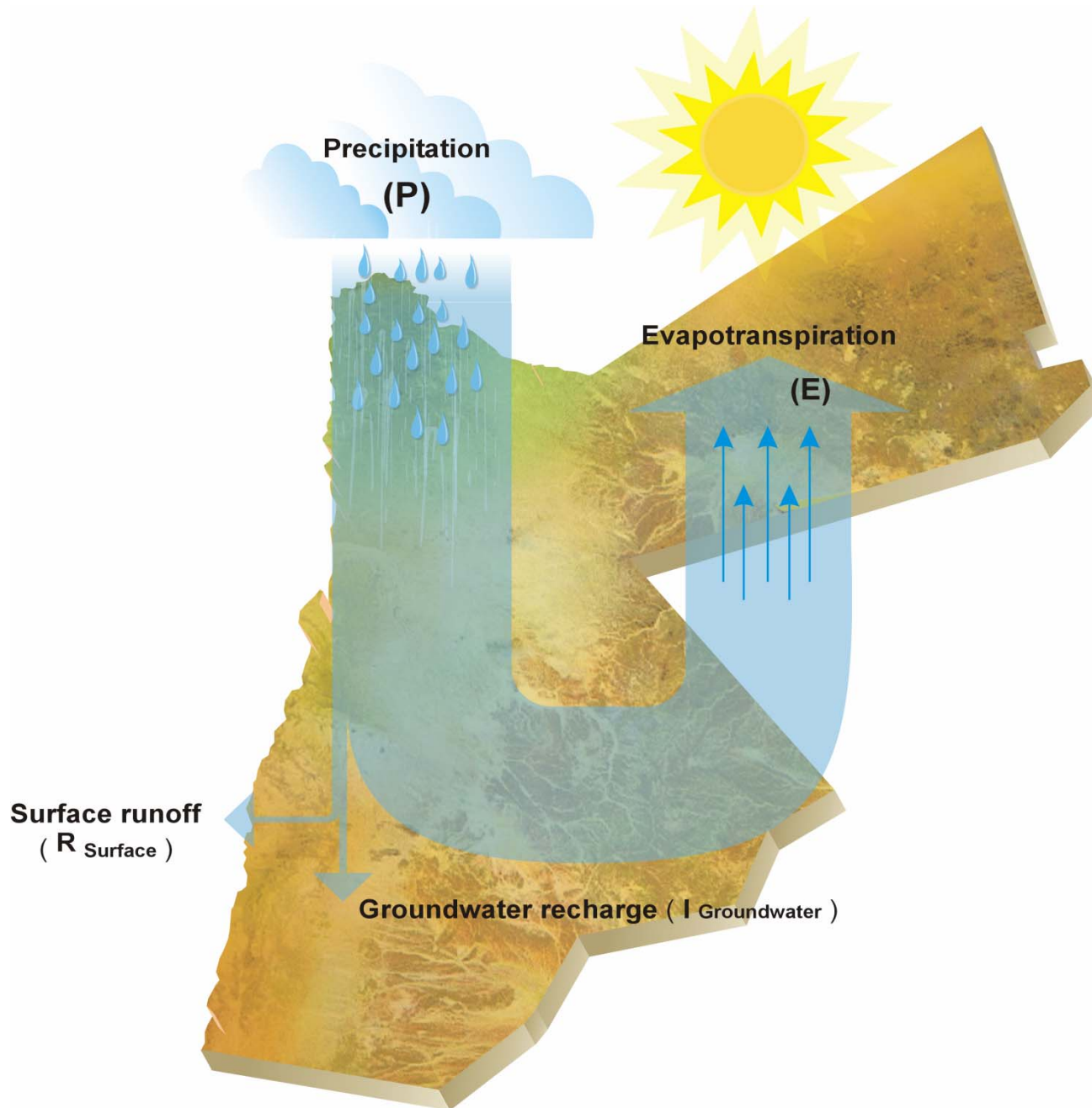
Aqaba Gulf

very hot dry summer  
cold winter  
80% of the country area Rain < 100 mm

Shore (low lands)  
Badia and Desert

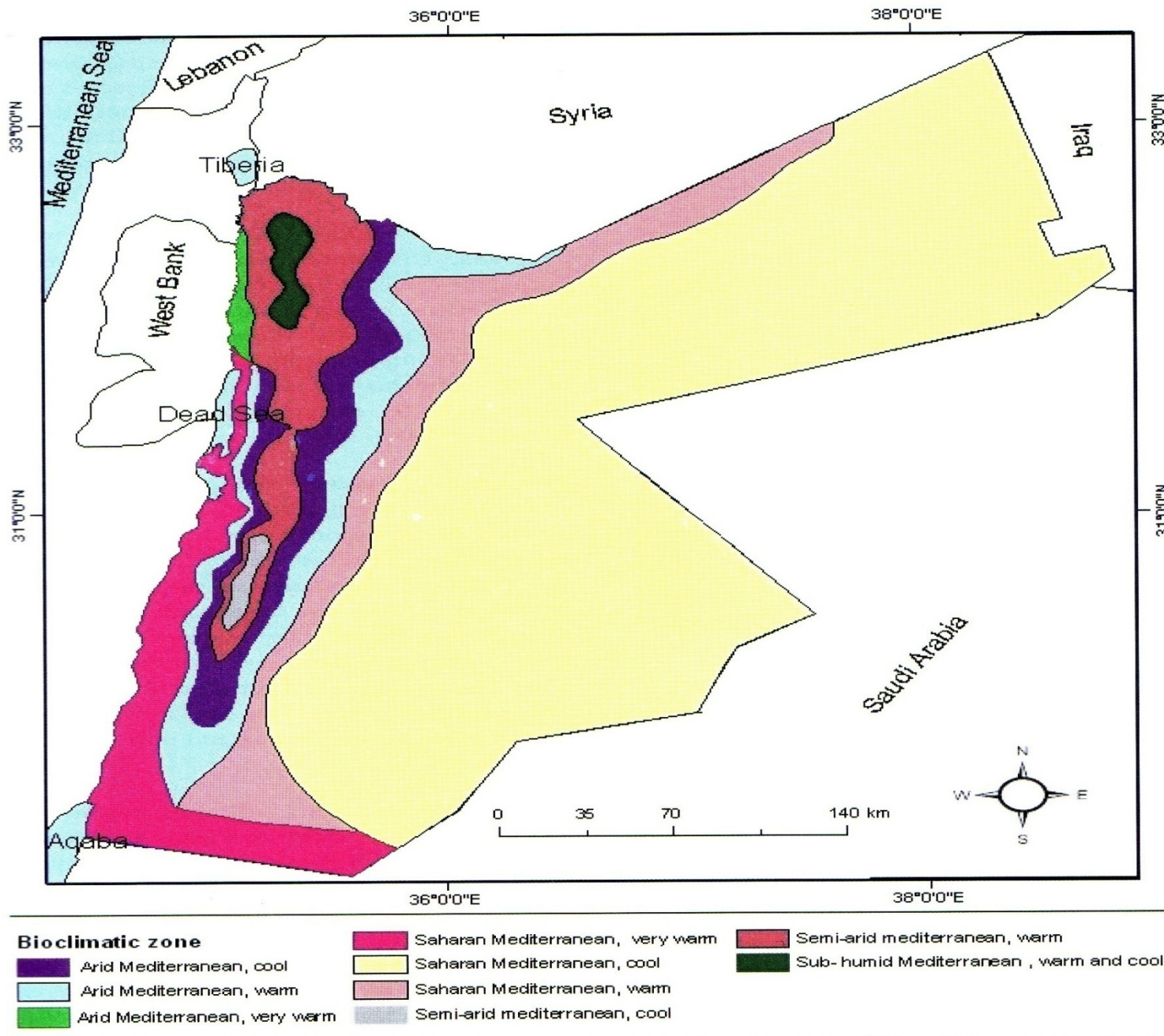


# Precipitation and Water Balance - Jordan



- 92% Evaporates
- Only 8% is available in the form of flood flow & groundwater

Figure 3: Main bioclimatic zones of Jordan (after Al-Eisawi, 1985).





## Operational Components of JMD

- × **Observation Network**
- × **Forecasting Facilities**
- × **Telecommunication sys.**
- × **Climate Data Bank**
- × **Admin**

# Climate Data Component

- ✘ Data archiving and retrieval
- ✘ Data processing (statistics, display,..)
- ✘ Quality control

# Climate Data: history

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- ✘ Earliest Data Record: 1923
- ✘ Various forms of paper log book
- ✘ Vax machine (mini computer) 1984
- ✘ PC IBM PCs – CLICOM 1992
- ✘ JCDMS Oracle(2000)

## JCDM

- . In 1998 Jordan start to develop its own CDM system based on Oracle as RDBMS.
- . Climate Data Management System (JCDMS) replace CLICOM in 2000.
  - . The JCDMS system data management module can perform a wide variety of tasks:
    - . Key-entry data (old forms).
    - . Key-entry of data ( current observation).
    - . Importing data ( different format).
    - . Validation and Quality control.
    - . Management & re-organization of data sets.
    - . Archiving, Exporting, analysis
    - ....
- JCDMS allows a large number of options putting climate data in useable form.

# JMD Network and Spatial Distribution

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- ✘ Main stations (23)

  - \*SYNOPTIC & AGROMET STATIONS

- ✘ Volunteers (27 )

  - \*CLIMATE STATION

- ✘ Automatic Stations (5)

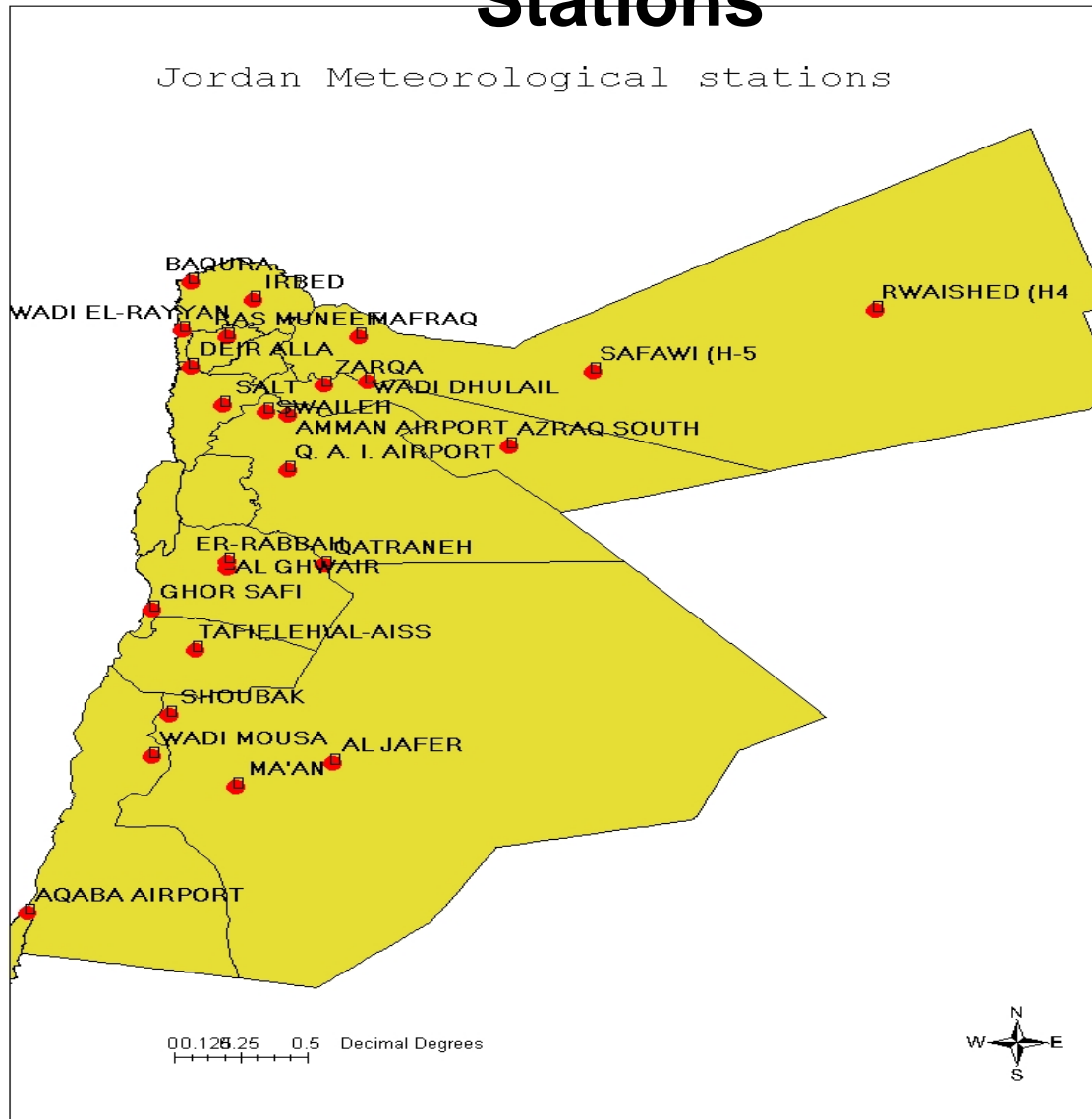
- ✘ Rainfall Stations (60) \*

  - \* These rainfall stations run by different agencies

    - ❖ The data is not digitized

    - ❖ The data is used for media purposes only

# Spatial Distribution of Jordan Meteorological Stations



Jordan Meteorological Stations /Climatic regions

- ✘ almost all weather and climatic elements
  - data are digitized on hourly (6 Hours), daily and monthly basis.

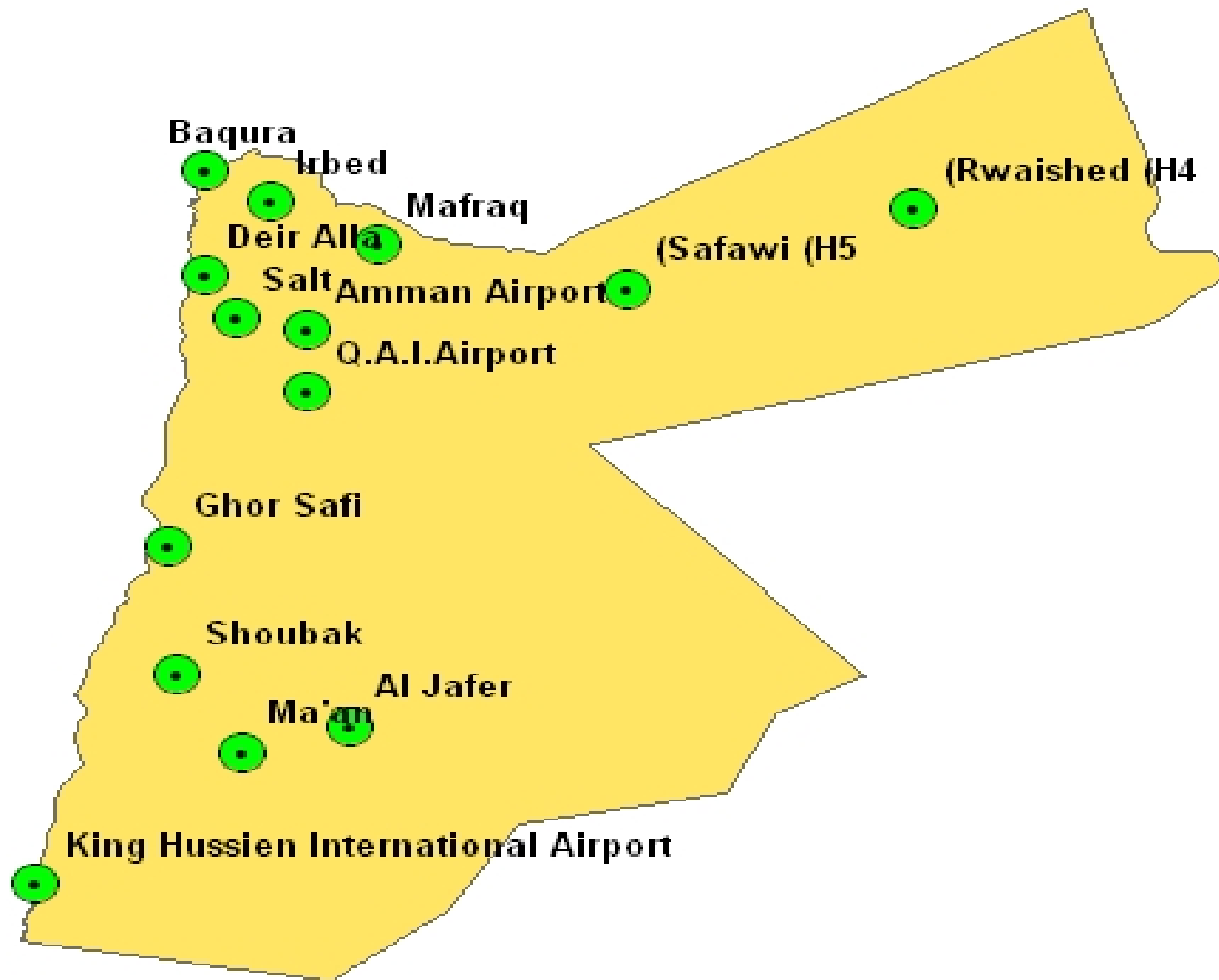
# Information of the 12 Represented Jordan Meteorological Stations

STATION NAME	WMO_NO	LAT	LONG	ELEVATION	OPEN_DATE	Record length
Baqura	40253	32 40 00	35 37 00	-170	1965-01-01	42
Deir Alla	40285	32 13 00	35 37 00	-224	1952-01-01	58
Ghor Safi	40296	31 03 31	35 29 35	-350	1975-01-01	35
Irbed	40255	32 32 04	35 51 18	616	1955-01-01	55
Shoubak	40300	30 30 38	35 31 50	1365	1960-01-01	50
King Hussien International Airport	40340	29 36 15	35 01 07	55	1959-01-01	51
Ras Muneef	40257	32 22 49	35 48 41	1150	1977-01-01	33
Amman Airport	40270	31 59 00	35 59 00	781	1923-01-01	87
Mafraq	40265	32 21 06	36 15 22	686	1953-01-01	57
Safawi (H5)	40260	32 09 39	37 09 18	674	1964-01-01	46
Q.A.I.Airport	40272	31 43 00	35 59 00	722	1971-01-01	39
Al Jafer	40305	30 17 00	36 09 00	865	1965-01-01	45



# Longest Possible Records for The Measured Climate Elements

STATION NAME	Min, Precipitation, OPEN_DATE	Max, Wind Speed & Direction, HDAILY, AIR PRESSURE, # of DAYS	Temperature, Record length	Humidity, Record length	Synop, Record length	Clouds, MISSING years	Visibility, SYNOP MISSING years
Baqura	1965-01-01		42	42	42	0	0
Deir Alla	1952-01-01		58	58	48	0	10
Ghor Safi	1975-01-01		35	34	34	1	1
Irbed	1955-01-01		55	55	50	0	5
Shoubak	1960-01-01		50	47	48	3	2
King Hussien International Airport	1959-01-01		51	51	48	0	3
Ras Muneef	1977-01-01		33	33	30	0	3
Amman Airport	1923-01-01		87	87	51	0	36
Mafraq	1953-01-01		57	51	48	6	9
Safawi (H5)	1964-01-01		46	46	43	0	3
Q.A.I.Airport	1971-01-01		39	39	37	0	2
Al Jafer	1965-01-01		45	42	39	3	6



information about digitizing Rain charts  
[www.exact.org](http://www.exact.org)

