



Country-Report of Jordan Meteorological Department



General information

The kingdom is located east of the Mediterranean Sea, surrounded by land from all direction with only a small access to the Red Sea by the Gulf of Aqaba.

Capital : Amman

Population of Jordan:11,659,000 people.



The Topography

A topographic map of Jordan showing its geographical features. The map uses color gradients to represent elevation: dark green for lowlands, light green for moderate elevations, and brown for high mountain ranges. The Jordan River and Dead Sea are visible on the western side, and the Gulf of Aqaba is at the southern tip. The Red Sea is to the east. A dashed line indicates the border with Iraq to the east. Five red-bordered callout boxes with arrows point to specific features: the Jordan Valley, the northern and central plains, a mountain range, a desert area, and the Gulf of Aqaba.

Jordan Valley,
More than
400 m.
below
MSL.

The
plains, in
north
and
centre
areas.

Mountain
range,
extends
from N. to
far S. it
reaches to
+1700 m.
above
MSL.

Desert
area, it
covers
the
eastern
parts of
Jordan

The Gulf
of Aqaba

Weather systems that affect Jordan

Azori High; during all seasons with dry and mild conditions

H

Siberian High, during winter with very cold and dry conditions

H

Mediterranean depressions; during Winter and Spring with cold and rainy conditions

L

L

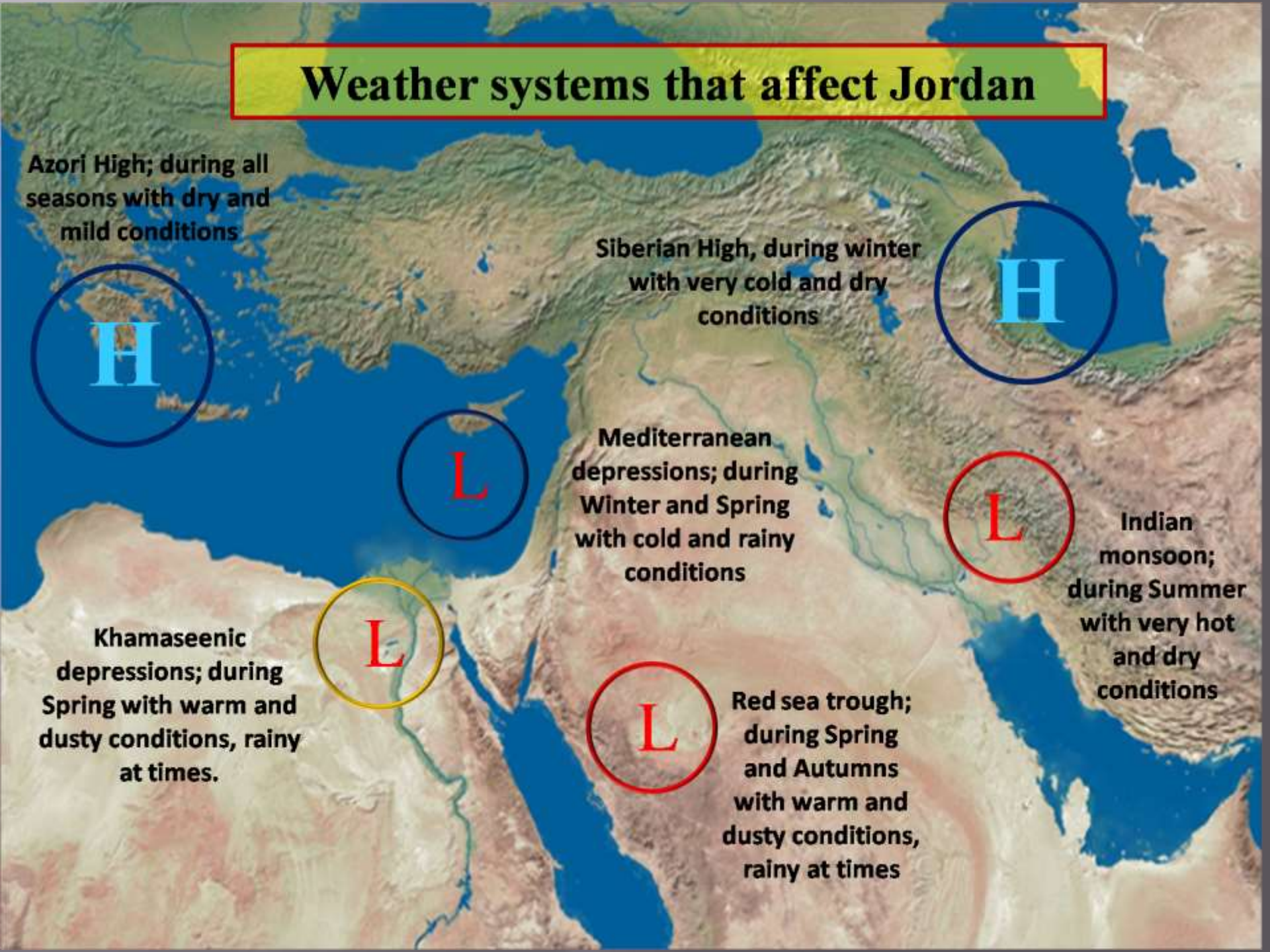
Indian monsoon; during Summer with very hot and dry conditions

Khamaseenic depressions; during Spring with warm and dusty conditions, rainy at times.

L

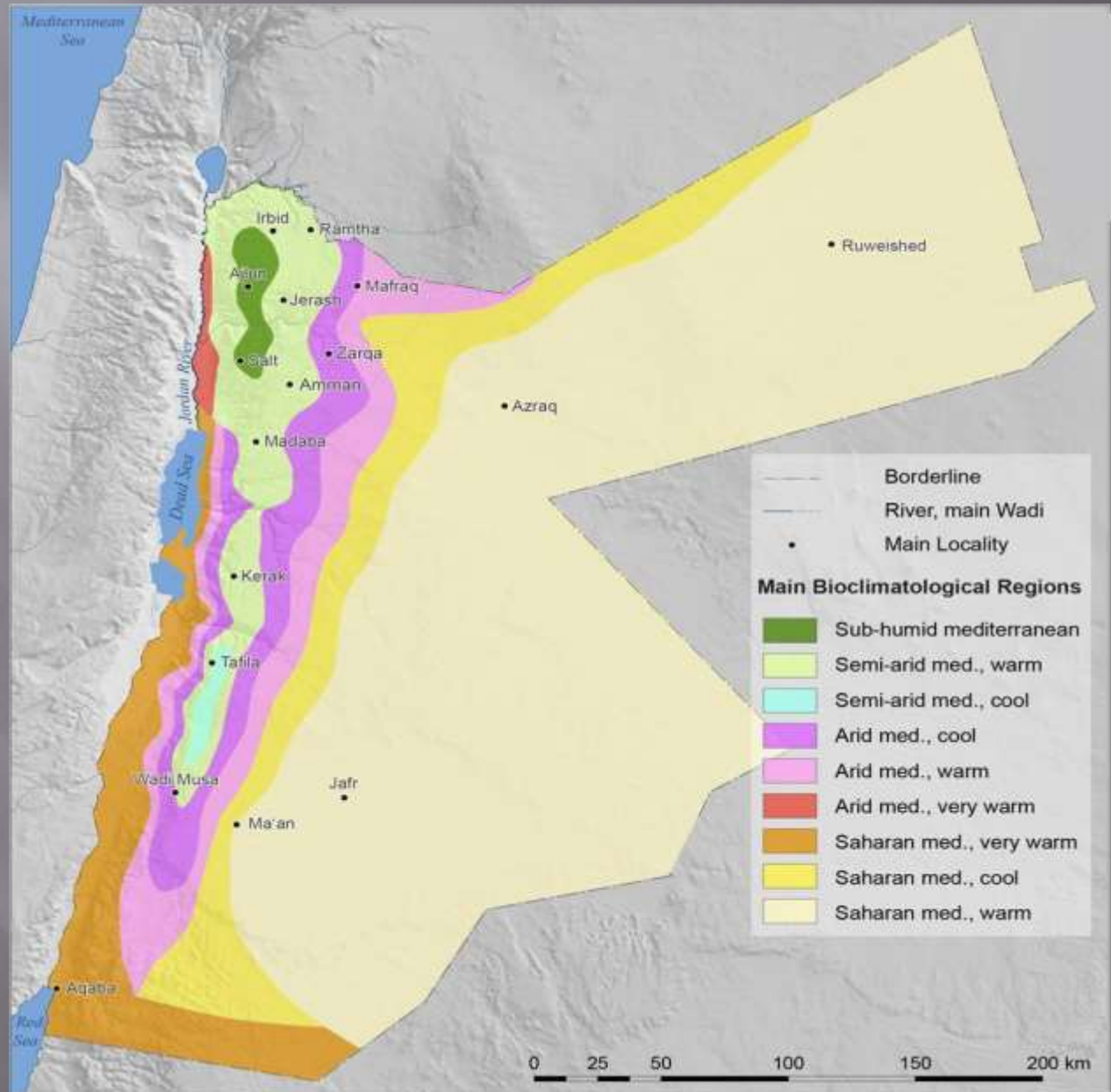
Red sea trough; during Spring and Autumns with warm and dusty conditions, rainy at times

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Climate distribution in Jordan

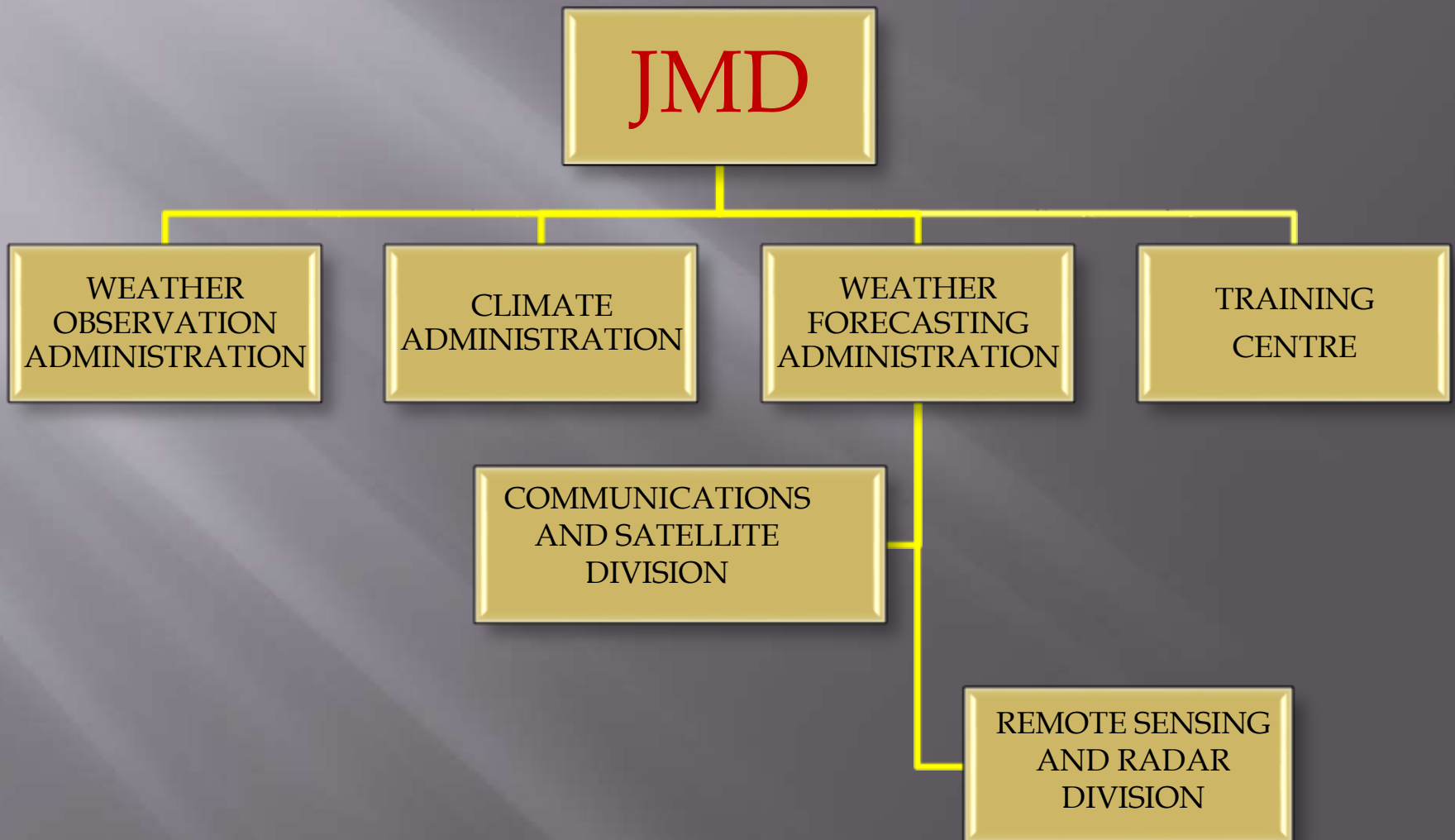
- Dry and hot Summer, maximum temp. exceeds $+45^{\circ}\text{C}$. in some areas. And heat waves.
- Mild Autumn, major fluctuations in weather, temp exceeds $+45^{\circ}\text{C}$. in some areas and reaches to -10°C on others. Rainy and dusty at times.
- Cold, humid and rainy winter with snow occasionally.
- Mild Spring at daytime and cold at night, rainy at times and snow in rare occasions.



General Weather Services of Jordan Meteorological Department

- Provides weather bulletins to the public via all means of communication.
- Provides aviation reports.
- Provides special weather reports to a specific agencies or sectors.
- Issuing weather warning bulletins to different sectors.
- Issuing climate reports periodically.
- Provides researchers, public agencies and private sector with climate data as needed.
- Provides training in the fields of weather observing and forecasting.

Organization, Human Resources



Meteorological Satellite

-JMD receives satellite data and products by the agreement with EUMETSAT with the necessary software's and keywords.

Main satellite products available at JMD;

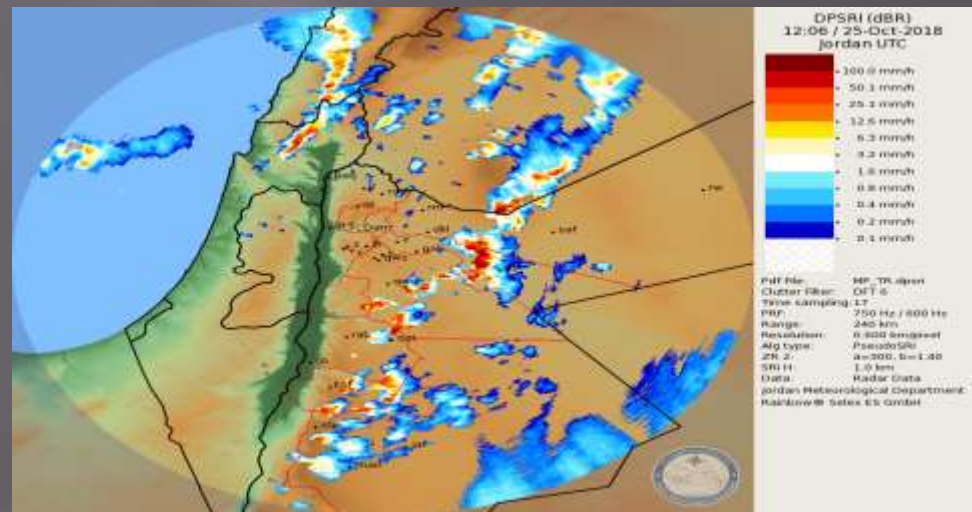
-Visible imagery (VIS 1.6-VIS 0.6- VIS 0.8)

- Infrared imagery (INF 3.9- INF 6.2- INF 7.3- INF 8.7- INF 9.7- INF 10.8- INF HRV-INF 13.4- INF 12)

-RGB products (convective- day microphysics- air mass- dust- fog- natural- snow-volcanic ash)

The JMD's Radar

- The JMD's Radar was installed in 2017.
- It was installed in the eastern area Amman, because most of the weather conditions come from the west and north west.



Rain Enhancement Projects

Due to Jordan's urgent need to improve water security and enhance available water sources, the government has taken all available measures and resources to mitigate the damage caused by the acute shortage of water and the general trend of low rainfall.

Three rain enhancement projects have been implemented :

- Rainmaking using silver iodide or dry ice crystals.
- Rainmaking using Royal Thai rainmaking technology.
- Rainmaking using Ionization Technology .

Rainmaking using Silver Iodide or Dry Ice Crystals

- ▣ Rain operations began in Jordan during the 1986/1987 rainy season using a rain aircraft equipped with silver iodide or dry ice crystal inside the clouds
- ▣ According to the study and report conducted in 1999 / 2000 “a study of on 10 years period of cloud seeding over Jordan“:
- ▣ The percentage of increase in the amount of rainfall reached (19%) by about 1700 million cubic meters, about twenty-one times that of the King Talal dam .
- ▣ As it turned out that we pay one dinar to get the value of 304 dinars of water from the rain project .
- ▣ The project was stopped in 2000

Rainmaking Using Royal Thai Rainmaking Technology

- ▣ Project period 2016/2019
- ▣ Operations began on March 23, 2016 by using a rain aircraft equipped, Spraying material NaCl , KCl and dry ice crystal with urea in the clouds in many stages.
- ▣ The project was implemented over three years 2016/2019
- ▣ The recommendations of the Joint Steering Committee of the rain project concluded at its third meeting, which was held on 26/11/2018, that continuing to implement rain operations according to the current situation is considered useless, and that financial allocations estimated at(7.850.000) seven million eight hundred and fifty thousand dinars, which is the cost of infrastructure, should be provided once, in addition to an annual operating cost estimated at(1.954.000) million nine hundred and fifty-four thousand Jordanian dinars, as monitoring the costs referred to above in the budget of the Meteorological Department for the year 2019.

Rainmaking using Ionization Technology

- ❑ The operations began on May, 2016 by ion technology.
- ❑ The operations The operations took in two phases:
- ❑ The first phase (15/5/2016 - 31/12/2016 ,
- ❑ The second phase (27/11/2017-26/5/2018)
- ❑ Referring to the report of the Directorate of climate :
- ❑ The first phase : there were 4-8 previous rainy seasons achieved higher rainfall totals for the same period without any rain operations in it.
- ❑ The second phase :there were 4-27 previous rainy seasons that achieved higher totals for the same period without any rain operations in it.
- ❑ Failure to support the continuity of the project due to its high cost and estimated (20,000,000) twenty million dinars and the inability to monitor the amount in a budget.
- ❑ The project was stopped in 2018

Thank YOU