Outline

• Overview of Morocco
• Description of Morocco climate
• Climate data availability
• Tourist attractions
Overview of Morocco

- Located on the extreme north west of Africa
- Between the Atlantic Ocean and the Mediterranean Sea
- Dominated by the chain of Atlas, which peaks at over 4000 m and ending at the southern desert
- The capital is Rabat
- The official language is Arabic
- The religion is Islam
- Dazzling wealth of imperial cities
Overview of Morocco climate

Morocco is characterized by three geographical components:

- The expanded mountainous area
- the important sea coastline: 3500 km
  - Atlantic ocean & Mediterranean sea
- the great extension in latitude
Overview of Morocco climate

- Humid to semi-humid climate in the North
- Arid to semi-arid climate in the South
- Rainfall less frequent and less important on the east than the west
- More intense in the hills than on plains
- Moderate temperatures on the coast
Climate data availability
### Climate data availability

<table>
<thead>
<tr>
<th>Station</th>
<th>Period</th>
<th>Station</th>
<th>Period</th>
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<tbody>
<tr>
<td>Tanger</td>
<td>1960-2011</td>
<td>Ouarzazate</td>
<td>1960-2011</td>
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<td>Oujda</td>
<td>1960-2011</td>
<td>Fès</td>
<td>1961-2011</td>
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<td>Rabat</td>
<td>1960-2011</td>
<td>Ifrane</td>
<td>1960-2010</td>
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<tr>
<td>Agadir</td>
<td>1960-2011</td>
<td>Al Hoceima</td>
<td>1964-2010</td>
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<tr>
<td>Casablanca</td>
<td>1960-2011</td>
<td>Tan Tan</td>
<td>1975-2010</td>
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<td>Safi</td>
<td>1960-2011</td>
<td>Laayoune</td>
<td>1976-2010</td>
</tr>
<tr>
<td>Essaouira</td>
<td>1960-2011</td>
<td>Sidi Ifni</td>
<td>1975-2010</td>
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<tr>
<td>Midelt</td>
<td>1960-2011</td>
<td>Dakhla</td>
<td>1980-2010</td>
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</tbody>
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**Daily data:**

- 20 stations (>=30 years)
- Daily Maximum temperature
- Daily Minimum temperature
- Daily precipitations

- 11 stations: 1960-2011
- 2 stations: 1961-2011
- 1 station: 1960-2010
- 1 station: 1964-2010
- 2 stations: 1975-2010
- 1 station: 1976-2010
- 2 stations: 1980-2010
- Meta data: 13 stations
Climate data availability

Zonage climatique (El Hamly et al., 1999)

Zonage climatique (F. Guelai, 2008; communication personnelle)
The main types of weather situations in Morocco

1. North-West perturbations (Atlantic origin)
2. West perturbations (Atlantic origin)
3. North perturbations (Continental origin)
4. Convective storm (especially in summer time)
5. Tropical perturbations
6. Heat waves situations
7. Anticyclonic & cold waves situations (Blockage)
8. Exceptionnel situation (29-30 November 2010)
The main types of weather situations in Morocco

1. North-West perturbation (Atlantic origin)

- Low pressure is situated in the north Atlantic.
- Cold front reaches Morocco by the NW.
- Moderate to heavy rain in northwest.
- Snow in mountain.
The main types of weather situations in Morocco

2. West perturbations (Atlantic origin)

- Low pressure center moves to the south.
- Cold front reaches Morocco by the west.
- Moderate to heavy rain in the northern half.
- Snow in mountain.
The main types of weather situations in Morocco

3. North perturbations (Continental origin)

- The air mass origin is continental.
- Cold front reaches Morocco by the north.
- Moderate or light rain in North.
- Temperature drop.

![Map showing temperature fronts and geopotential heights](image-url)
The main types of weather situations in Morocco

4. Convective storm (especially in summer time)

- Cold air in the upper level
- Moisture and high temperature in the lower level.
- Storms and moderate to heavy showers in mountain regions.
- Hail.
The main types of weather situations in Morocco

5. Tropical perturbation

- The summer African easterly waves can reach the south of Morocco.
- Showers in Saharian regions.
6. Heat waves situations

- Mass air overcomes the Atlas mountain.
- Warm, dry air associated with foehn winds (Chergui or Sirocco).
- High temperature.
- Forest fire danger.
The main types of weather situations in Morocco

7. Anticyclonic & cold waves situations

- Azores anticyclon moves to the north.
- Cold and continental air mass.
- Blockage situations (drought).
- Temperature drop.
- Widespread frost

Sea mean level pressure & temperature at 2 m lower than 0°C 04/02/2012 at 06H00 UTC
8. Exceptionnel situation (29-30 November 2010)

- 200 mm in 24 hours.
- Severe Flood damage in some coastal towns (Casablanca for example).
Morocco, land of wonders and diversity

Ski
Beaches
Imperial cities
Sahara
fishing hobby
Oukaimeden lies just south of Marrakech in the High Atlas Mountains and is usually covered in snow in January and February.

Mischliffen is a ski area near the town of Ifrane in the Middle Atlas Mountains (close to Fes and Meknes).
Beaches

The coastline in Morocco has miles and miles of top quality beaches and most of them are a lot cleaner. There are 120 beaches from Saidia to Tangiers (Mediterranean zone), 238 from Tangiers to Essaouira (north Atlantic) and 54 from Agadir to Dakhla (south Atlantic).
Marrakech or Marrakesh known as the "Ochre City", is the most important former imperial city in Morocco's history
Ifrane is considered to be the arabo-Andalusian city par excellence of Morocco and the Arab World.
Sahara

Zagora, Errachidia, Ouarzazate
Dakhla is specialised in deep sea fishing
Morocco, land of wonders and diversity

Thank you