



COST ACTION FP 0703

**Echoes: Expected Climate Change
and Options for European Silviculture**

Country Report: Major points

CYPRUS

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Cyprus Forestry Department



Cyprus is the 3rd biggest Mediterranean island
It is situated at the easternmost end of the Mediterranean basin
Area: 9251 Km²



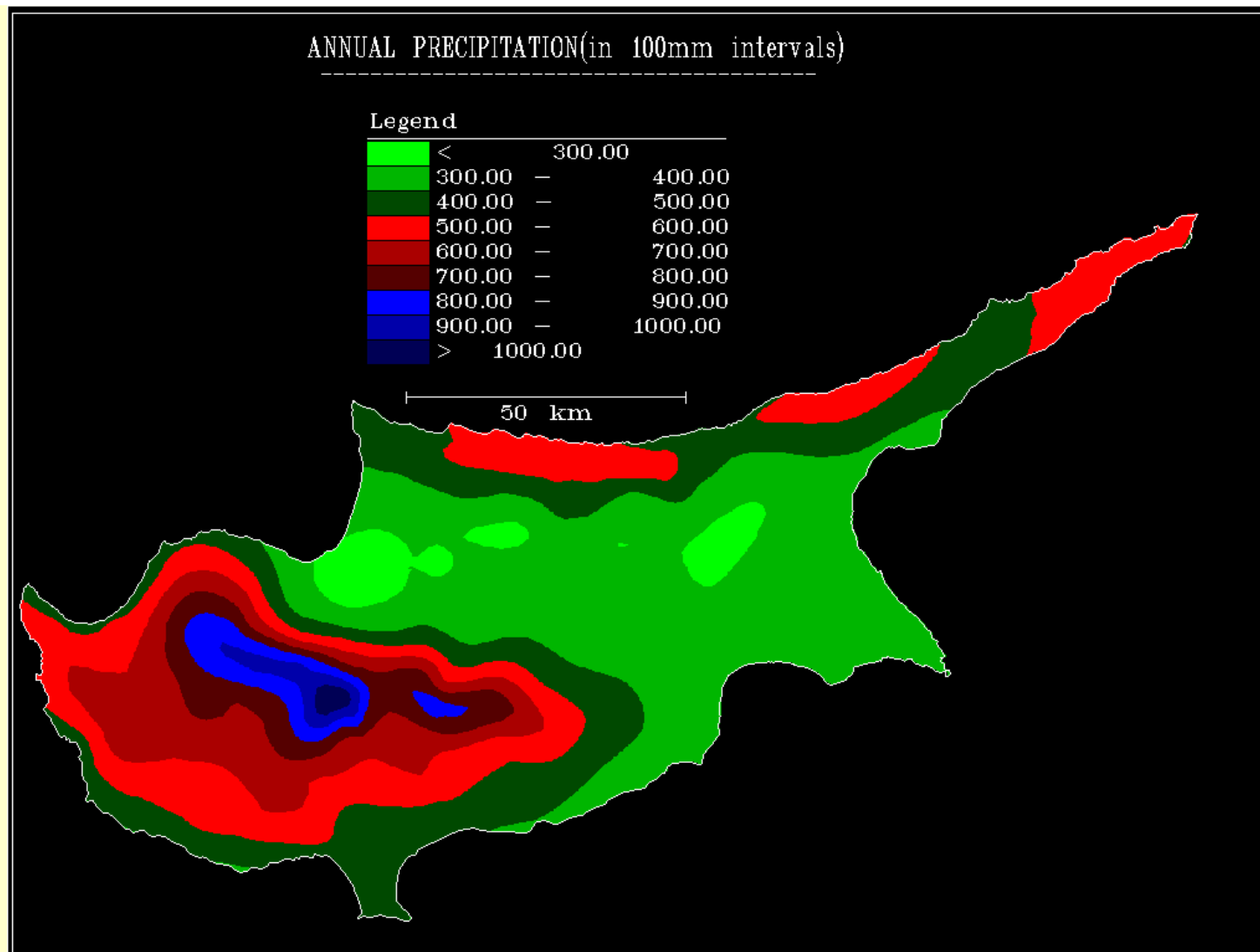
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The geomorphology of the island is distinguished by two main mountain ranges

Troodos (1952m) and Pentadactylos range (1024m) which influence local weather phenomena. Mesaoria plain lies between them.



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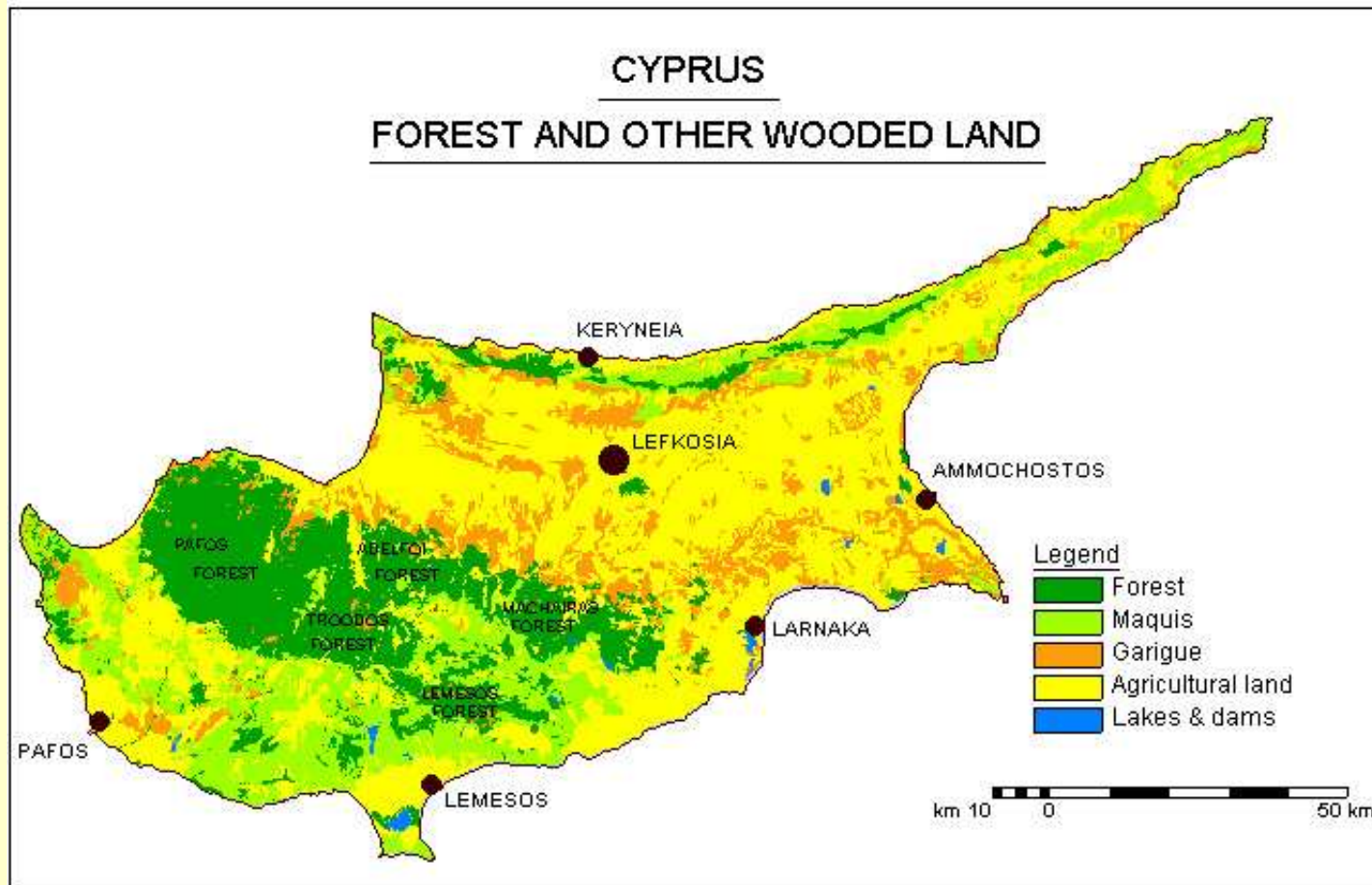
The climate is typically Mediterranean with hot dry summers and rainy winters separated by short autumn and spring seasons.

Annual average precipitation 480mm (300 – 1100mm)

Summer mean daily temperature: 22°C - 29°C Mean Max: 27°C - 36°C

January mean daily temperature: 3°C - 10°C Mean Min: 0°C - 5°C





- High Forest 18.7%
- Maqui formation 13.6%

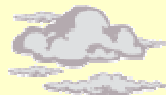
➤ 1980 plant species, sub species and varieties have been identified out of which 131 are endemic to Cyprus

Forests are managed primarily for recreation, nature conservation and other non-wood services. Wood production is nowadays a secondary management objective.

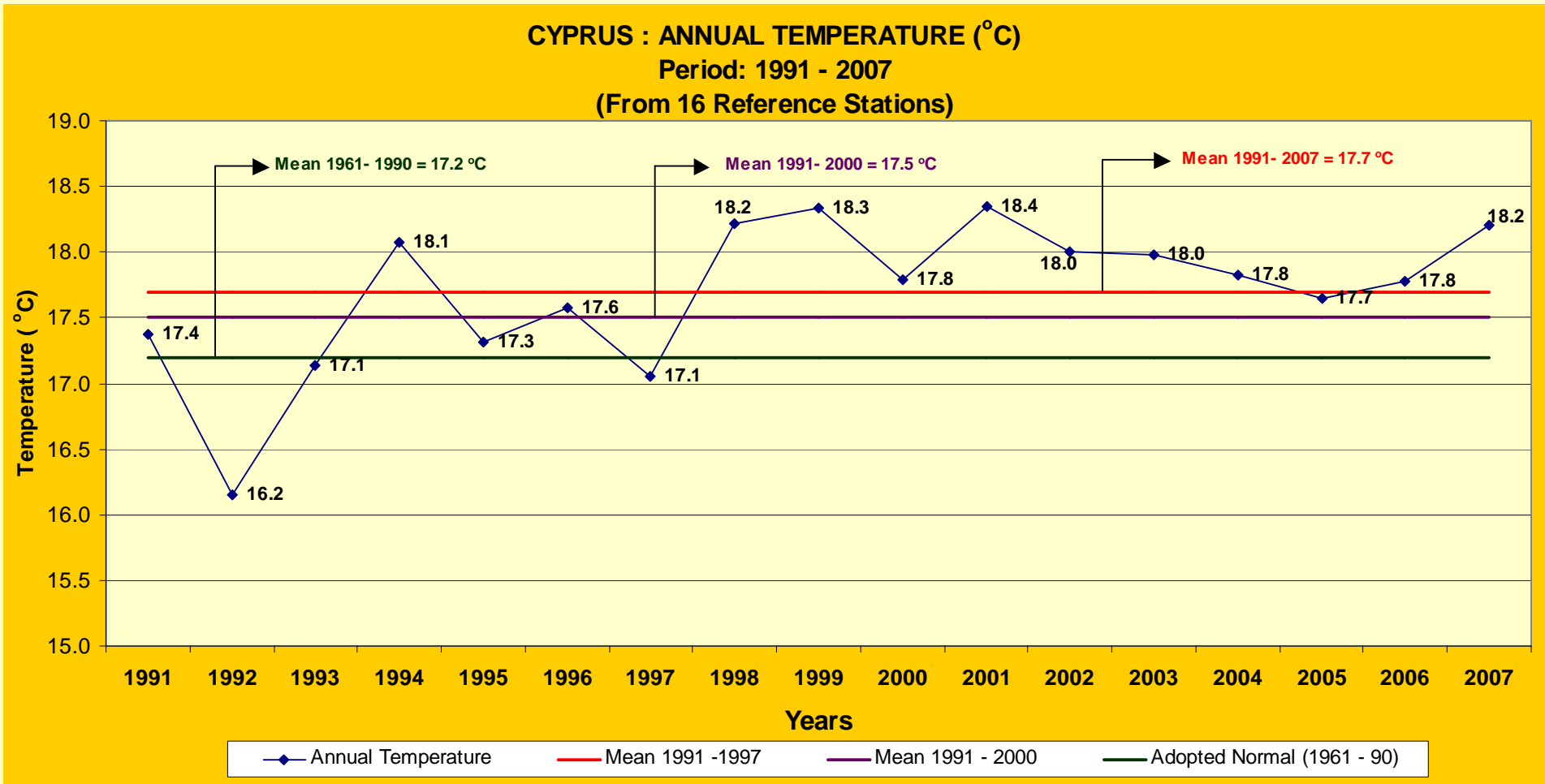


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- Remarkable variations and trends were observed in regard to the main meteorological parameters in Cyprus the last century.
- In general, the rates of change are greater during the second half of the century as regards the parameters of precipitation and temperature.
- We have more years with low precipitation and drought and more warm years the last 20 years
- Precipitation tends to decrease (the average precipitation in the last 30-year period is 17% less than in the period 1901-1930) and temperature to increase (increasing trend of 0.01°C per year)
- It is expected that by 2030 Precipitation will decrease by 10 - 15% and Temperature will increase by $1,0 - 1,5^{\circ}\text{C}$ compared to the normal values of the period 1961- 1990



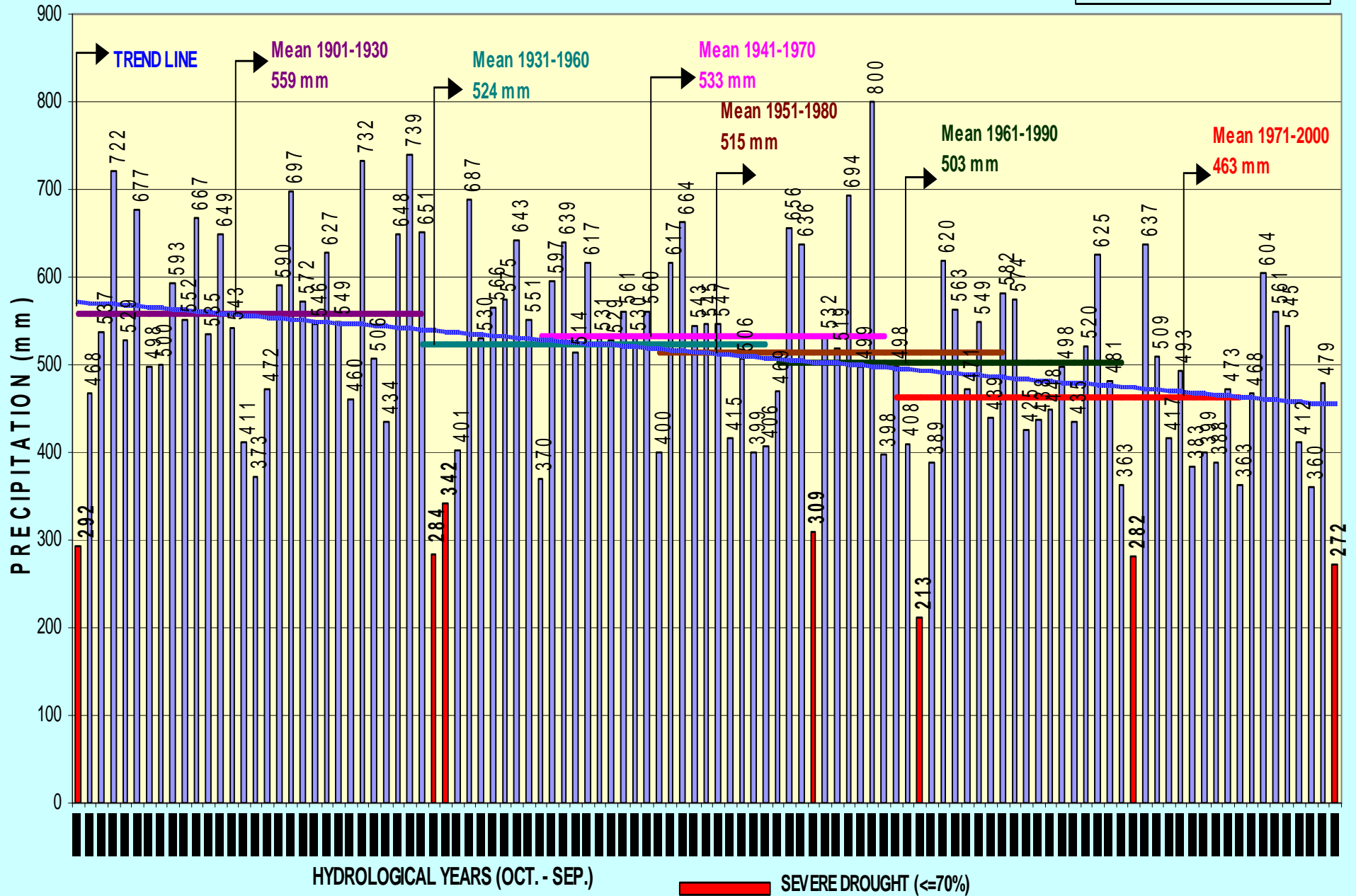
Cyprus and Climate Change



ANNUAL AREA AVERAGE PRECIPITATION (mm) IN CYPRUS (1901-02 - 2007-08)

(For the area under Government Control)

Mean 1901-1930 = 559 mm
 Mean 1971-2000 = 463 mm
 Decrease 559 - 463 = 96 mm



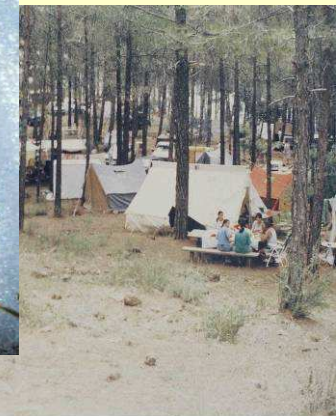
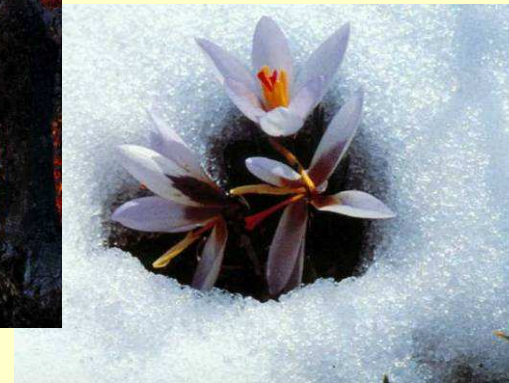
Observed Impacts

- Low storage of water in dams and lakes – effects to drinking & irrigation water and associated biodiversity
- Massive dieback of forest trees and shrubs
- Low survival rate of *Pinus nigra* regeneration seedlings during extreme periods of high temperatures
- Decrease of summer and winter recreational opportunities



Expected Impacts

- Biodiversity loss – (163 plant species are threatened (IUCN criteria) due to small population size and distribution area)
- Increase of forest soil erosion (due to decrease of vegetation cover)
- Insect and pathogens outbreaks
- Effects to recreation and other non-wood products
- Effects to aquifers and surface water storage status
- Higher fire risk
- Desertification



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Adaptation measures

- Conservation of ecosystem services
 - Soil stabilization, prevention of erosion
 - Soil moisture conservation
 - Watershed protection
 - Combating desertification
- Restoration of degraded forests - Immediate felling and extraction of dead trees
- Silvicultural and other treatments of forest stands and plantations (e.g. cleanings, thinnings, irrigation)
- Forest protection; fire prevention and fighting, damage from biotic factors, illegal felling and animal grazing
- Special measures for the wild fauna (eg provision of watering spots)
- Postponement of reforestation and forestation plans
- Use of local reproductive material and selection of species, Ex-situ conservation and utilization of genetic resources through the establishment of seed orchards and clone banks



Impact monitoring/ Indicators

- Long term monitoring and research on the climate change impacts on forests
- Monitoring of the air pollution effects on forests while participating in the ICP –Forests
- NFI -CFI
- Research on the “Die-back of Cyprus Cedar (*Cedrus brevifolia*)

Monitoring Indicators

- Deposition of air pollutants,
- Soil conditions,
- Defoliation,
- Number of trees and shrubs die-back



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Mitigation measures

Small scale mitigation measures are feasible

- Kyoto protocol
- Decrease of timber extraction – Retain / increase of wood volume (Use of longer rotation periods)
- Increasing the forest areas mainly through afforestation of bare lands and reforestation of abandoned agricultural lands
- Use of species with higher carbon sequestration ability (for plantations) and well adapted to hard climatic conditions
- Minimize of tillage and associated practices



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Thanks for your attention



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