Climate Change Activities of General Directorate of Forestry in Turkey

Dr. Akkın SEMERCİ
Foreign Relations Training and Research Department
General Directorate of Forestry (GDF)
Ministry of Forestry and Water Affairs

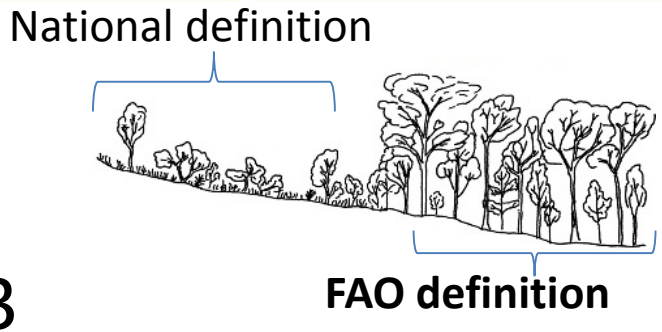
köklerinde hayat var...

www.ogm.gov.tr

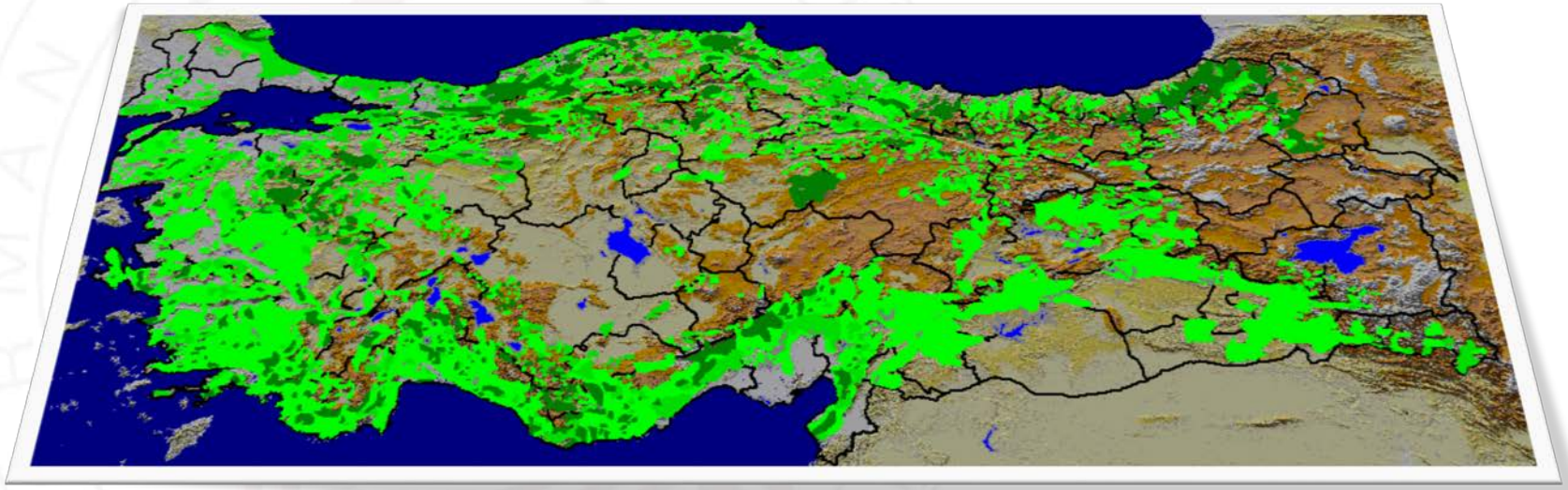
Major Operational Units of the Ministry

- General Directorate of Forestry
- General Directorate of Nature Protection and National Park
- General Directorate of Combating Desertification and Erosion
- General Directorate of State Hydraulic Works
- General Directorate of Meteorology
- General Directorate of Water Management

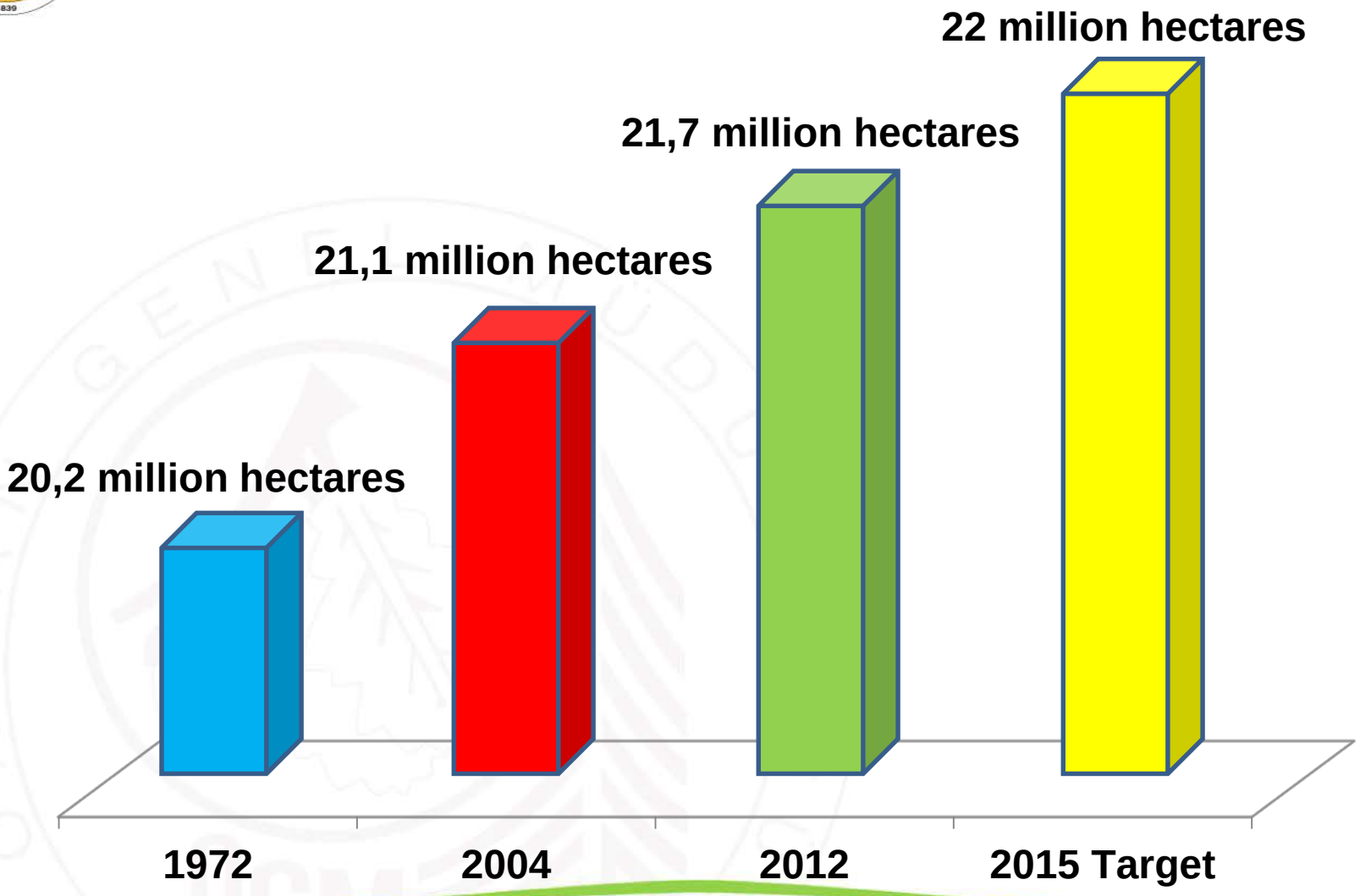
Forest Cover in Turkey



- Land Area: 78 million hectares
- Population: 76 million as of 2013
- Total forests: 21,7 million ha

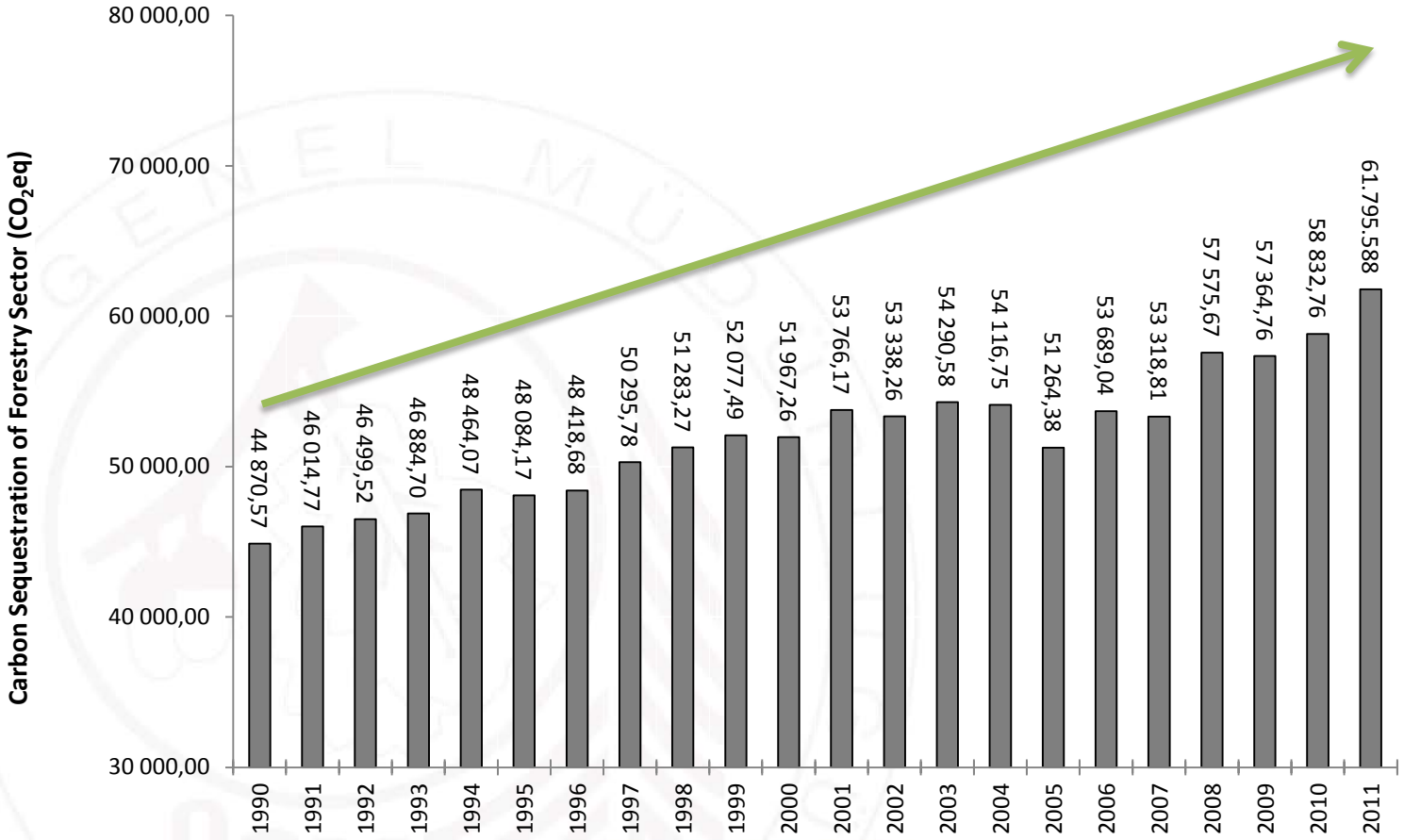


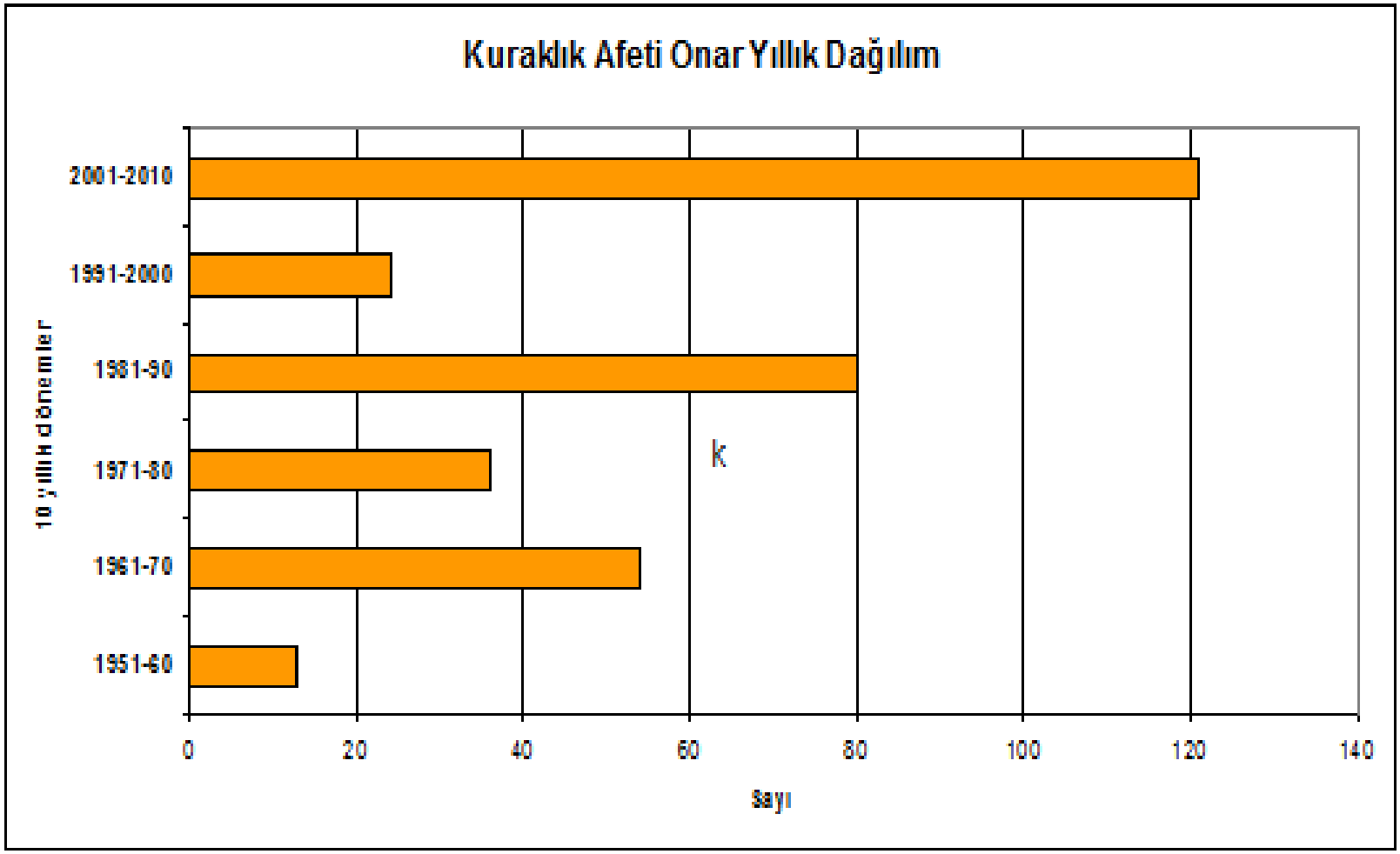
Forestry Activities in Turkey



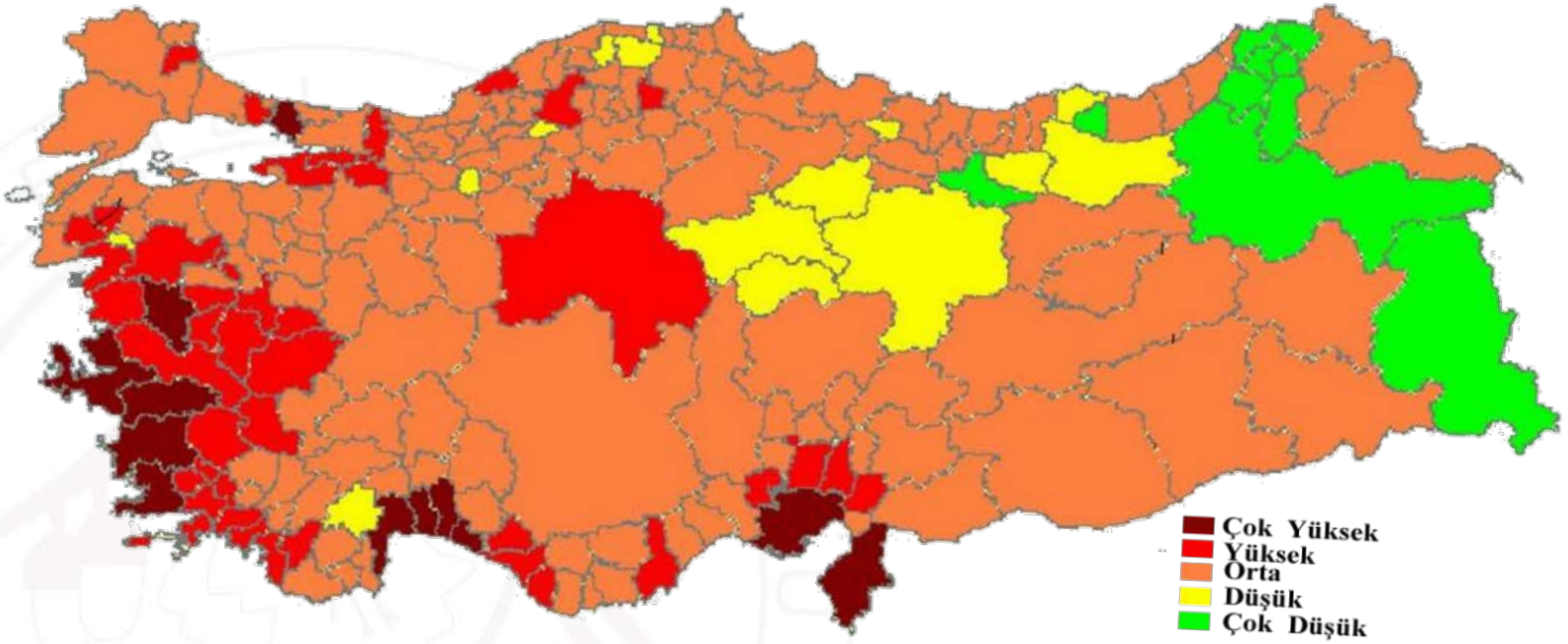
CC Activities in Turkey

CO_2 removals of forestry are increasing



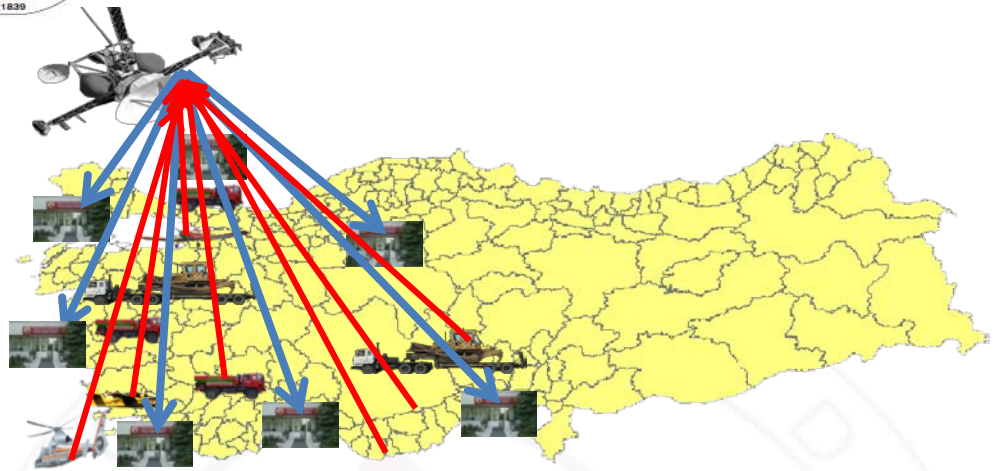

Kuraklık Afeti Onar Yıllık Dağılım
2001-2010
1991-2000
1981-90
1971-80
1961-70
1951-60
0
20
40
60
80
100
120
140
Sayı

Forest Fire Activities of GDF



According to EFFIS, Fire-risk map

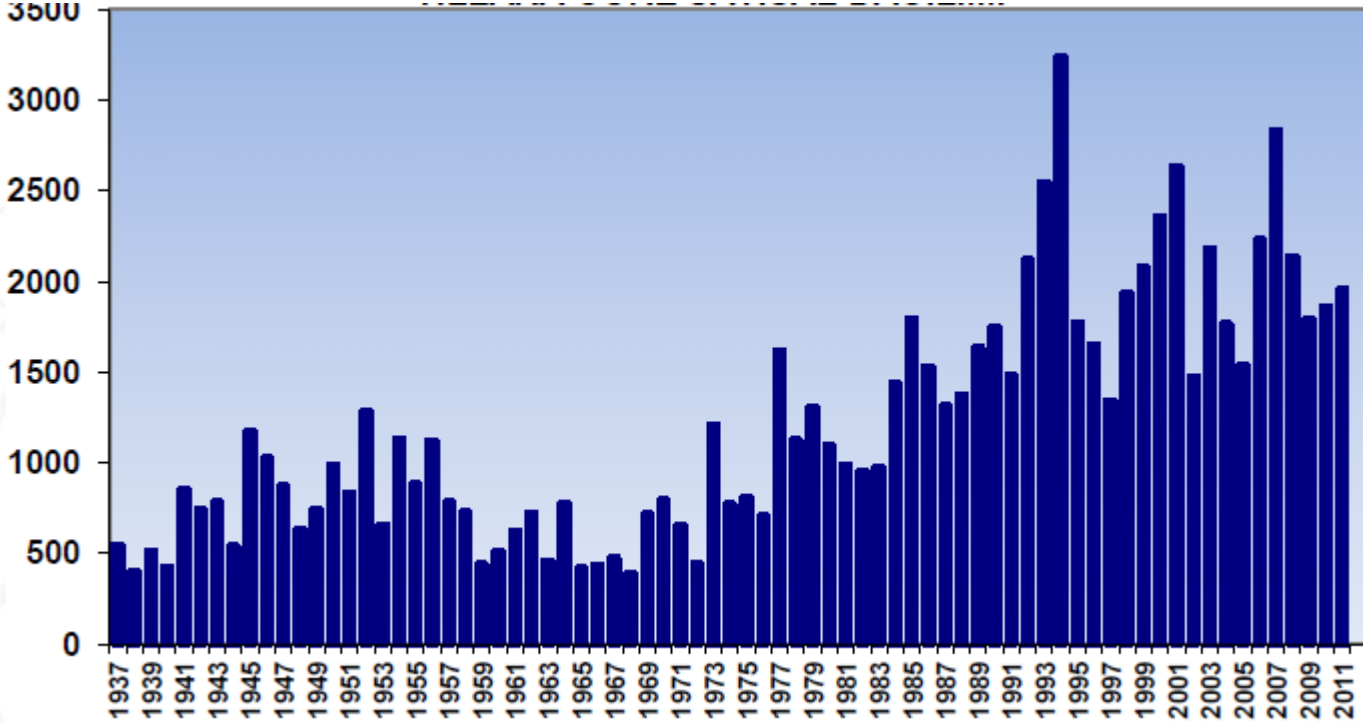
Forest Fire Activities of GDF



Forest Fire Activities of GDF

Fire Centers are informed in 15 seconds later visible the smoke

Annual Forest Fire Numbers



Portugal	Spain	France	Italy	Greece	Turkey
3,5 billion hectars	26 billion hectars	14,5 billion hectars	13,5 billion hectars	6,5 billion hectars	21,7 billion hectars

Non-Wood Products






39 million $ in 2002 and 435 million $ in 2013

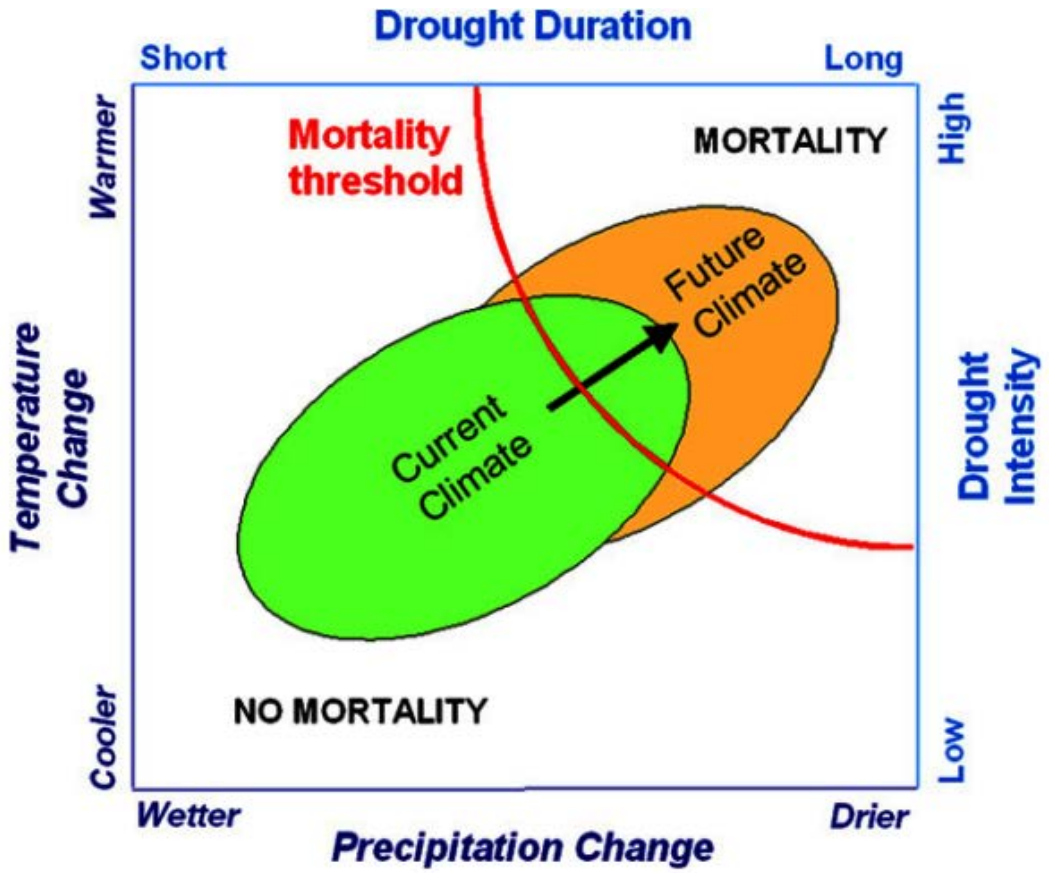
Heating System With Solar Energy

As a result, General Directorate of Forestry is combating climate change and spends 1 billion $ every year;

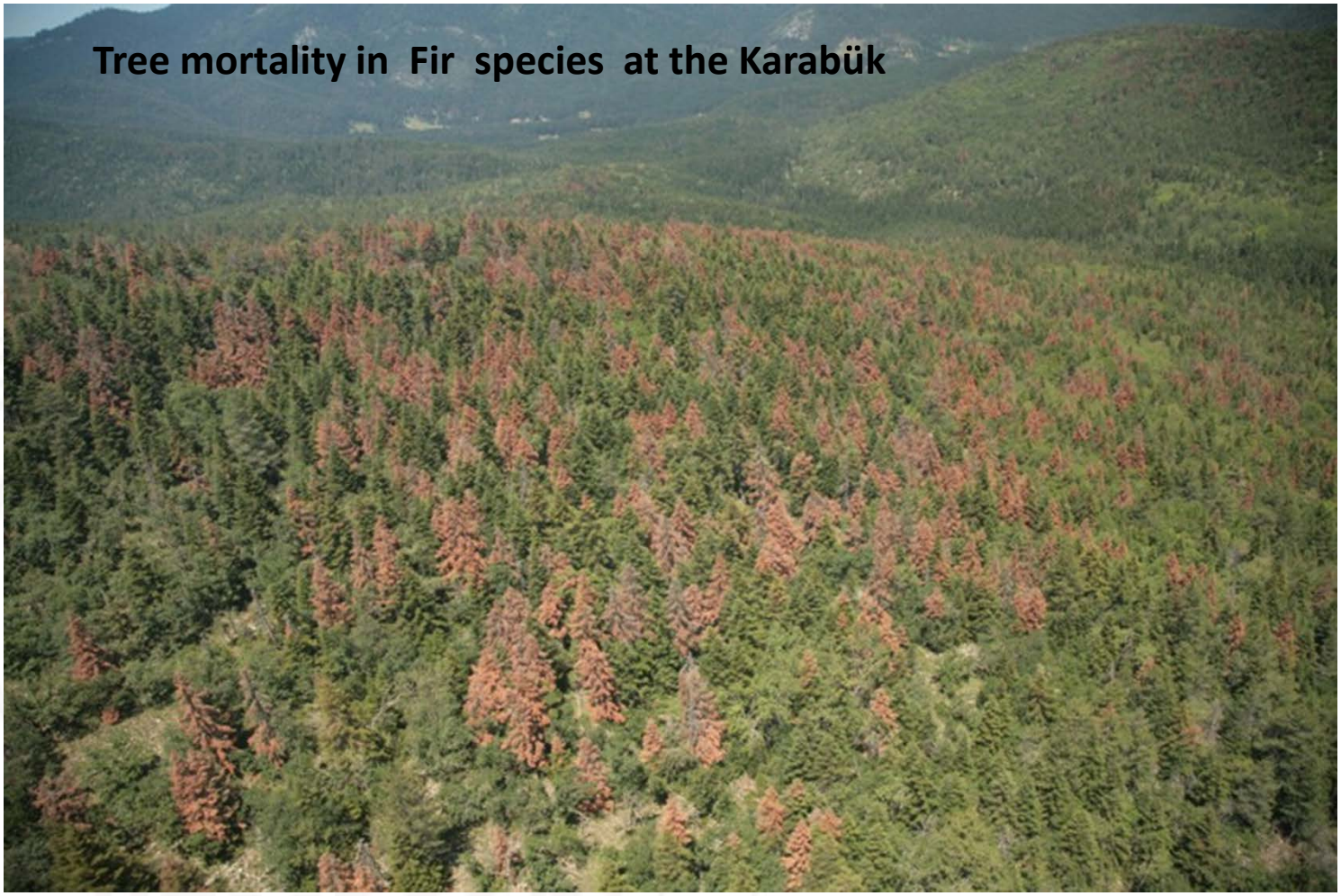
- To reduce emissions from deforestation and forest degradation,
- To conserve and enhance carbon stocks,
- To protect forests against wildfires and pests,
- To support rural villagers

CC Activities of GDF in Turkey

- National Climate Change Strategy Document
- Climate Change National Action Plan
- National Climate Change Adaptation Strategy and Action Plan



Allen et. al., 2010

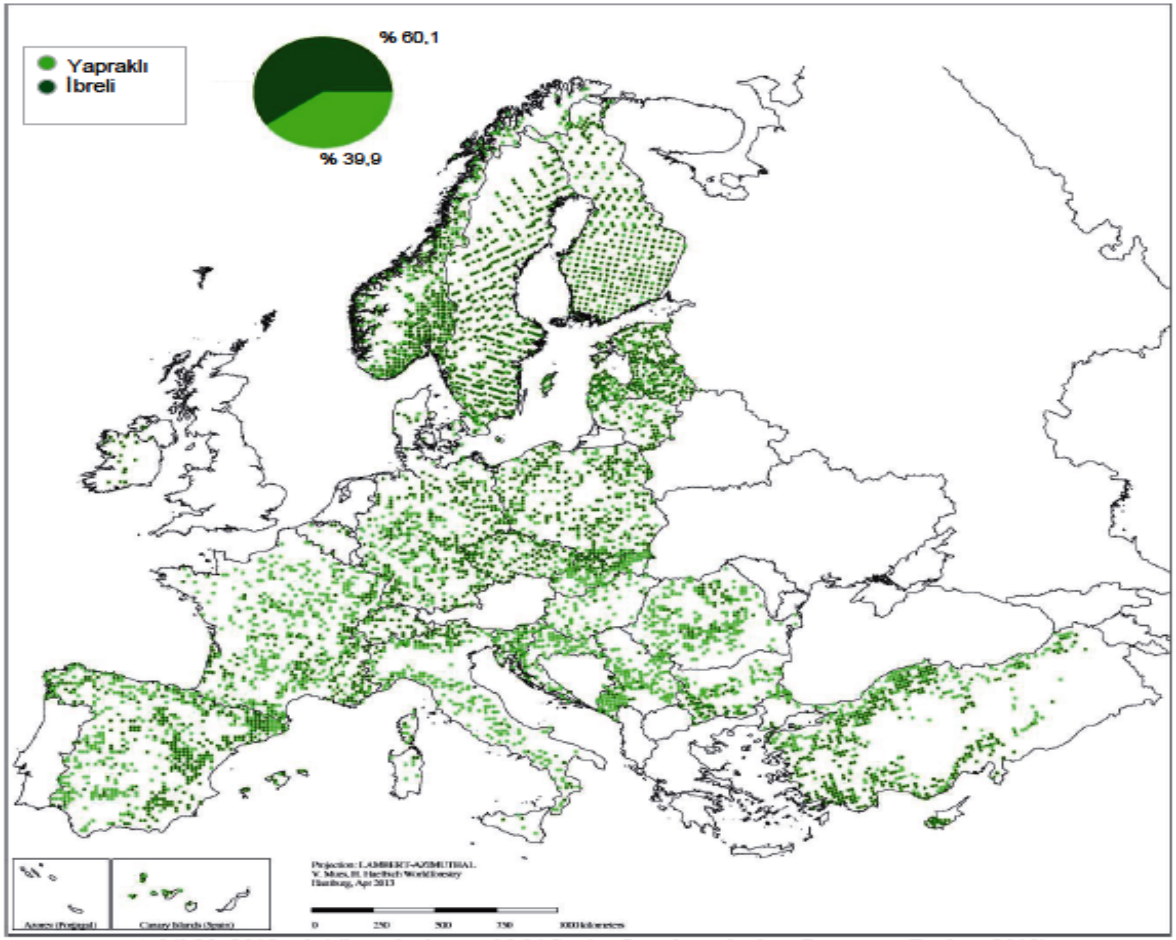

Tree mortality in Fir species at the Karabük

Tree mortality in Abies clicicia in 2014

Tree mortality in Scots pine -2014

Climate Change-Cedar (Cedrus libani)

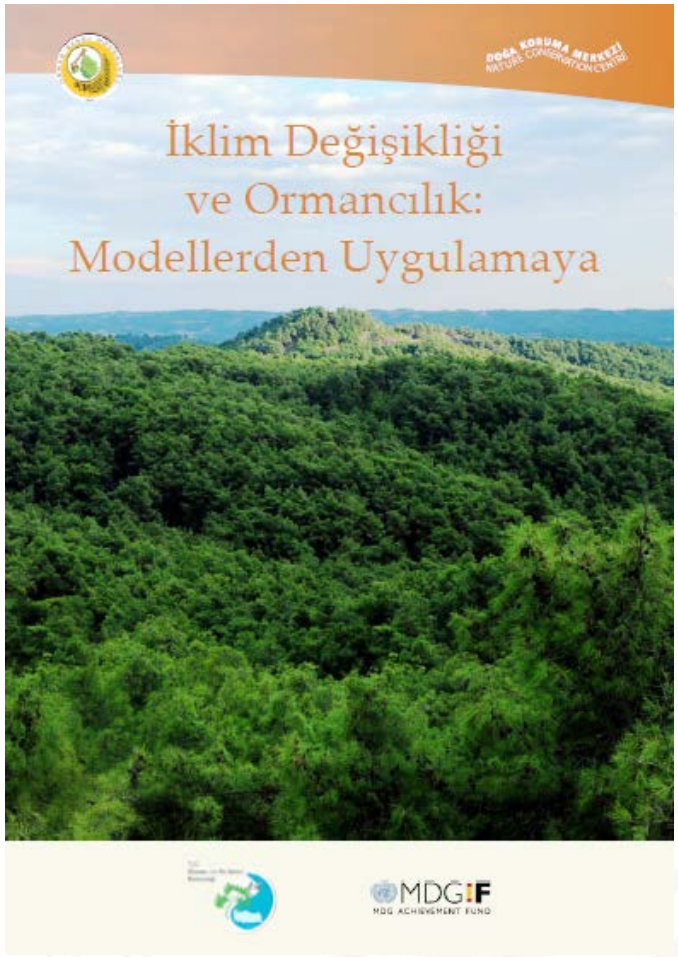
ICP Forest

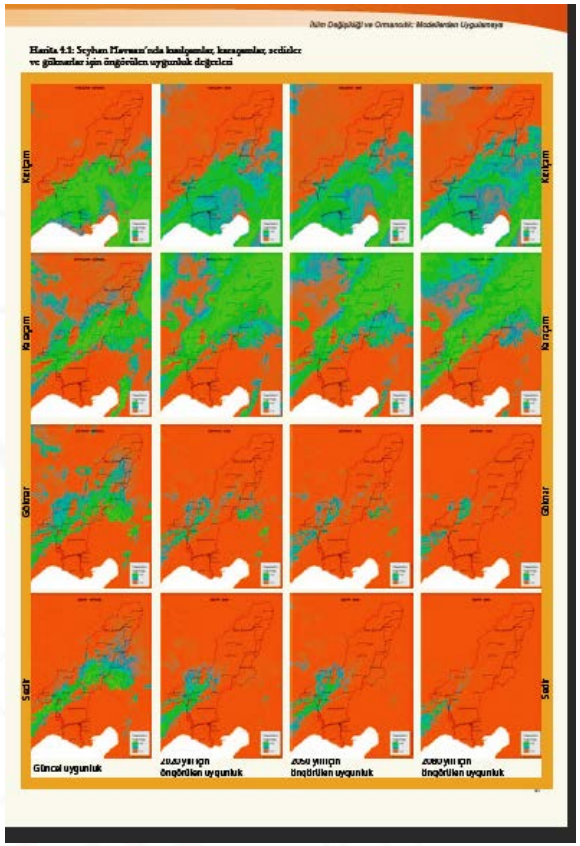


Şekil 20. 2012 yılı itibarıyla Avrupa'daki Seviye I gözlem alanları (Lorenz ve Becher, 2013)

Crown condition	**Tepe Durumu**
Soil	**Toprak**
Soil Solution	**Toprak Suyu**
Foliar	**Yaprak**
Growth	**Artım ve Büyüme**
Deposition	**Depolanma**
Ground vegetation	**Vejetasyon**
Meteorology	**Meteoroloji**
Phenology	**Fenoloji**
Ambient Air Quality	**Hava kalitesi**
Ozone Injury	**Ozon**
Litter fall	**Döküntü**
Biodiversity	**Biyolojik çeşitlilik**
Laboratory	**Laboratuar**
Database	**Veri tabanı**

Projections for Future Forest Cover in Turkey





TÜBİTAK

Research Article

Turk J Agric For
33 (2009) 305-314
© TÜBİTAK
doi:10.3906/tar-0810-21

The use of aridity index to assess implications of climatic change for land cover in Turkey

Derya ÖNDER[1,*], Mehmet AYDIN[2], Süha BERBEROĞLU[3], Sermet ÖNDER[1], Tomohisa YANO[4]

[1]Department of Agricultural Structures and Irrigation, Faculty of Agriculture, Mustafa Kemal University, 31040 Hatay - TURKEY

[2]Department of Soil Science, Faculty of Agriculture, Mustafa Kemal University, 31040 Hatay - TURKEY

[3]Department of Landscape Architecture, Faculty of Agriculture, Çukurova University, 01330 Adana - TURKEY

[4]Faculty of Engineering, Kyushu Kyouritsu University, 1-8 Jiyugaoka Yahata-nishi-ku, 807-8585 Kitakyushu - JAPAN

Received: 10.10.2008

Abstract: This study was carried out to determine the impacts of climate change on aridity and land cover in Turkey. Data for future (2070s) climate change, according to present conditions (1990s), were estimated from the prediction results of a regional climate model (RCM). The RCM, which was developed in Japan, is based on the MRI model. The potential impacts of climate change were estimated according to the A2 scenario of Special Report on Emissions Scenarios (SRES). Aridity index, the ratio of precipitation to potential evapotranspiration, was computed by using measured data for the present condition and estimated data by the RCM for the future years. Changes in aridity were evaluated by comparing the current and future index values. Aridity variables were interpolated to determine the spatial distribution by means of geostatistical methods. Land cover was modelled and mapped by using the present and future aridity index data.

In the southern regions of Turkey, especially along Mediterranean coasts, projected precipitation for 2070s will be 29.6% less than the present. On the contrary, an increase (by 22.0%) in precipitation was projected along the coast of Black Sea. The model predicted that the temperature might increase by 2.8-5.5 °C in the different regions of the country. This increase in temperature could result in higher evaporative demand of the atmosphere in the future (on the average 18.4 and 22.2% in the Mediterranean and Black Sea coastal regions, respectively and 17.8% in the whole country). Thus, an increase in aridity was foreseen for the whole Turkey except the north-eastern part.

A conversion of deciduous broadleaf forest to evergreen needle-leaf forest is predicted in the northern coastal areas when we compare the future land cover with the present situation. The mixed forest vegetation could spread in the interior parts of East Anatolia and the north-western part of the country in the future.

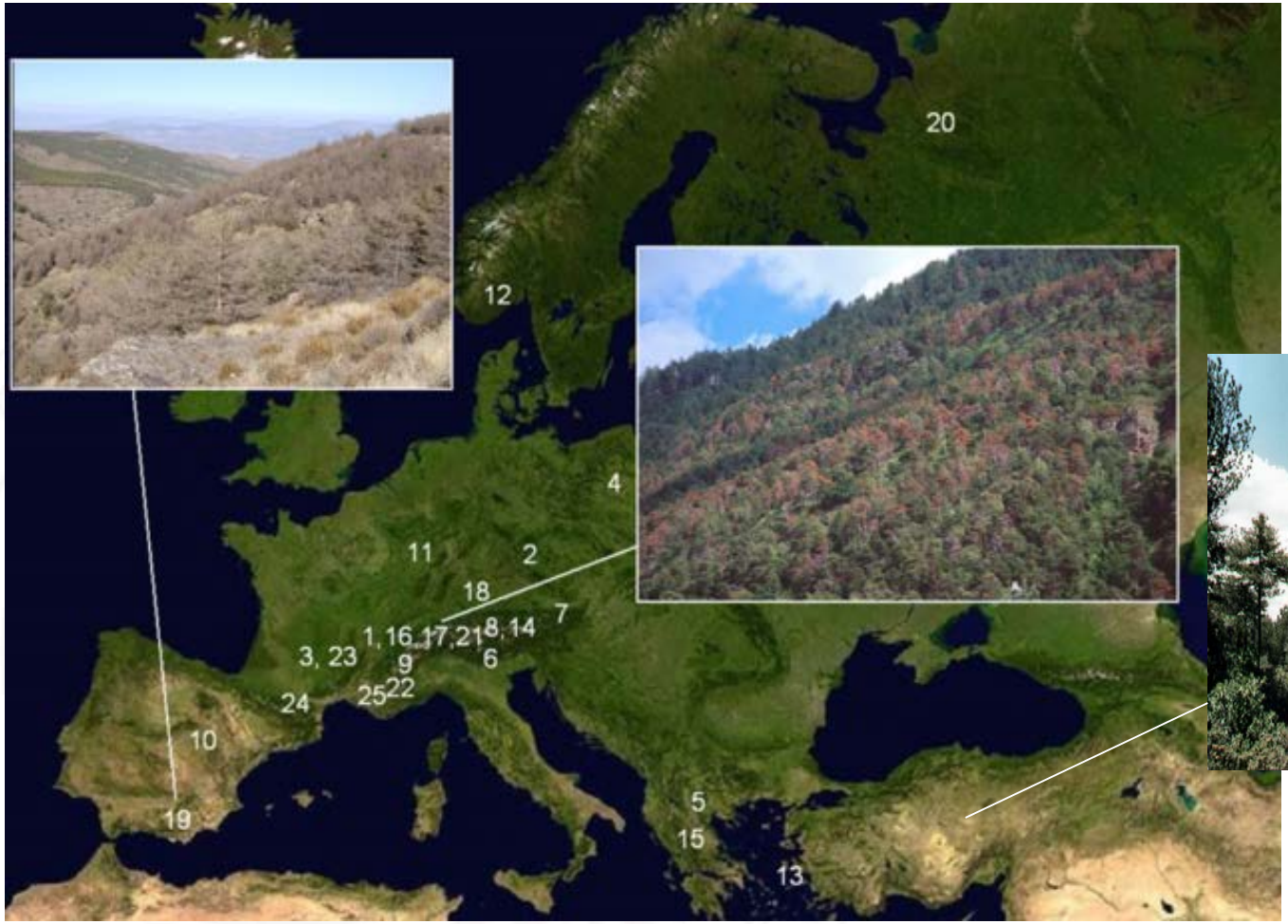
Key words: Aridity, climate change, land cover, monitoring, Turkey

İklim değişikliğine bağlı olarak Türkiye'deki bitki örtüsünün belirlenmesinde kuraklık indeksinin kullanımı

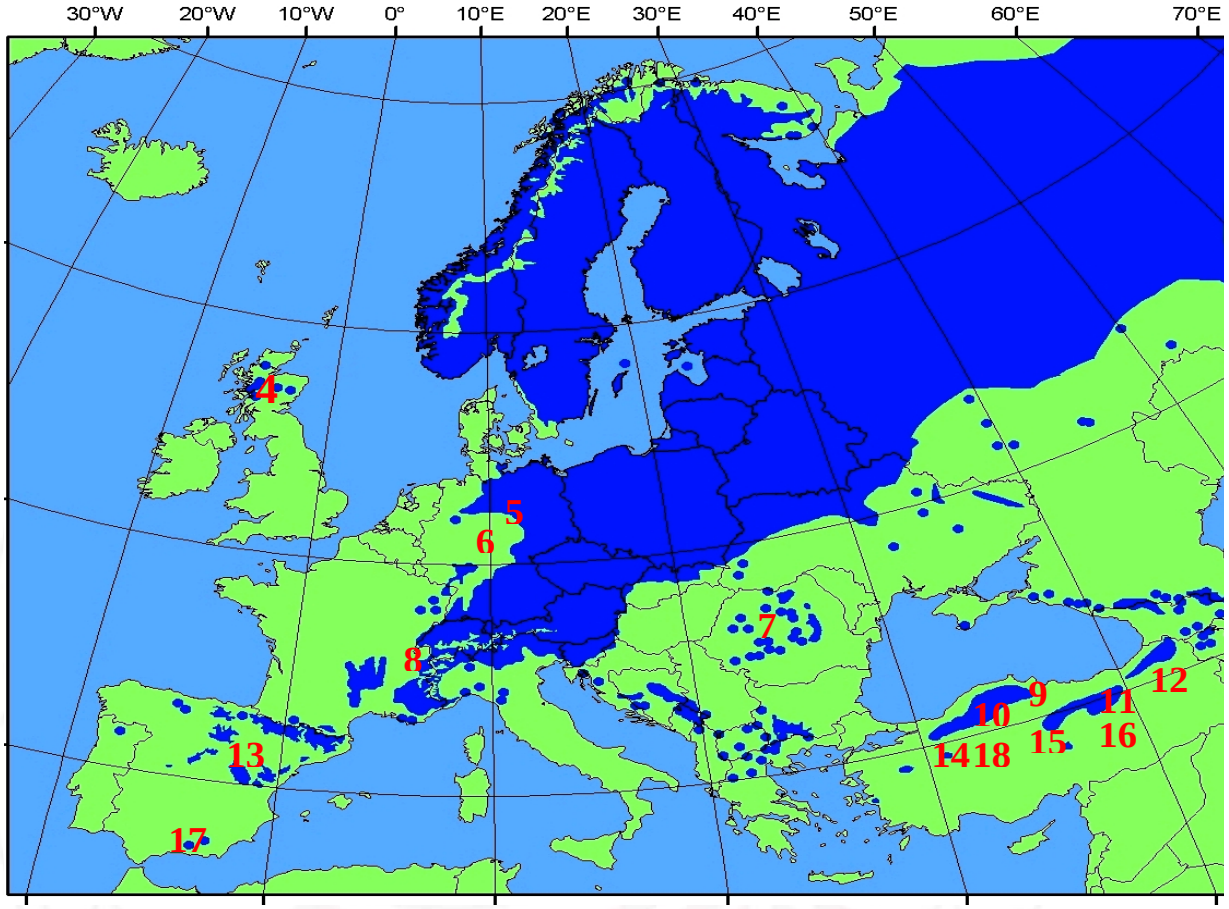
Özet: Bu çalışma, iklim değişikliğinin Türkiye' de kuraklık ve bitki örtüsü üzerine etkisini belirlemek amacıyla yapılmıştır. Mevcut duruma (1990'lı yıllara) göre gelecekteki (2070'li yılların) iklim değişikliği verileri, bölgesel bir iklim modelinin

* E-mail: deryaonder2007@gmail.com

Mortality in Scots Pine and Drought Tolerance

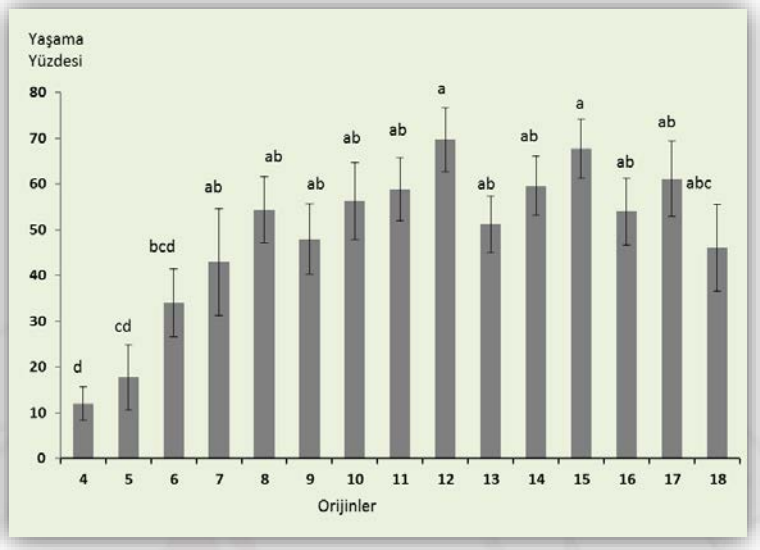


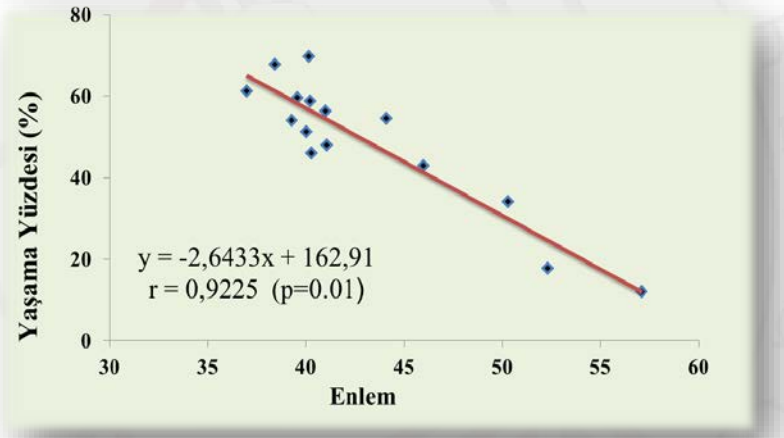
Mortality in Scots Pine and Drought Tolerance



Orj. No.	Ülkesi	Orijin Adı
4	İngiltere	psySTN4-01SI
5	Almanya	Waldsieversdorf
6	Almanya	Eich-Bergen
7	Romanya	Brasov
8	Fransa	PSY-Ventoux
9	Türkiye	Vezirköprü-Kunduz
10	Türkiye	Ilgaz-Yenice
11	Türkiye	Koyulhisar-Sisorta
12	Türkiye	Sarıkamış-Sarıkamış
13	İspanya	Montes universales
14	Türkiye	Çatacık-Değirmendere
15	Türkiye	Kayseri-Pınarbaşı
16	Türkiye	Akdağmadeni-Çulhalı
17	İspanya	Sierra penibeticas-nevada
18	Türkiye	Çamlıdere-Benliyayla

Mortality in Scots Pine and Drought Tolerance





Orj. No.	Ülkesi	Orijin Adı
4	İngiltere	psySTN4-01SI
5	Almanya	Waldsieversdorf
6	Almanya	Eich-Bergen
7	Romanya	Brasov
8	Fransa	PSY-Ventoux
9	Türkiye	Vezirköprü-Kunduz
10	Türkiye	Ilgaz-Yenice
11	Türkiye	Koyulhisar-Sisorta
12	Türkiye	Sarıkamış-Sarıkamış
13	İspanya	Montes universales
14	Türkiye	Çatacık-Değirmendere
15	Türkiye	Kayseri -Pınarbaşı
16	Türkiye	Akdağmadeni-Çulhalı
17	İspanya	Sierra penibeticas-nevada
18	Türkiye	Çamlıdere-Benliyayla

Thanks for your attention !