



Climate Change Projections for Water Resources of Turkey

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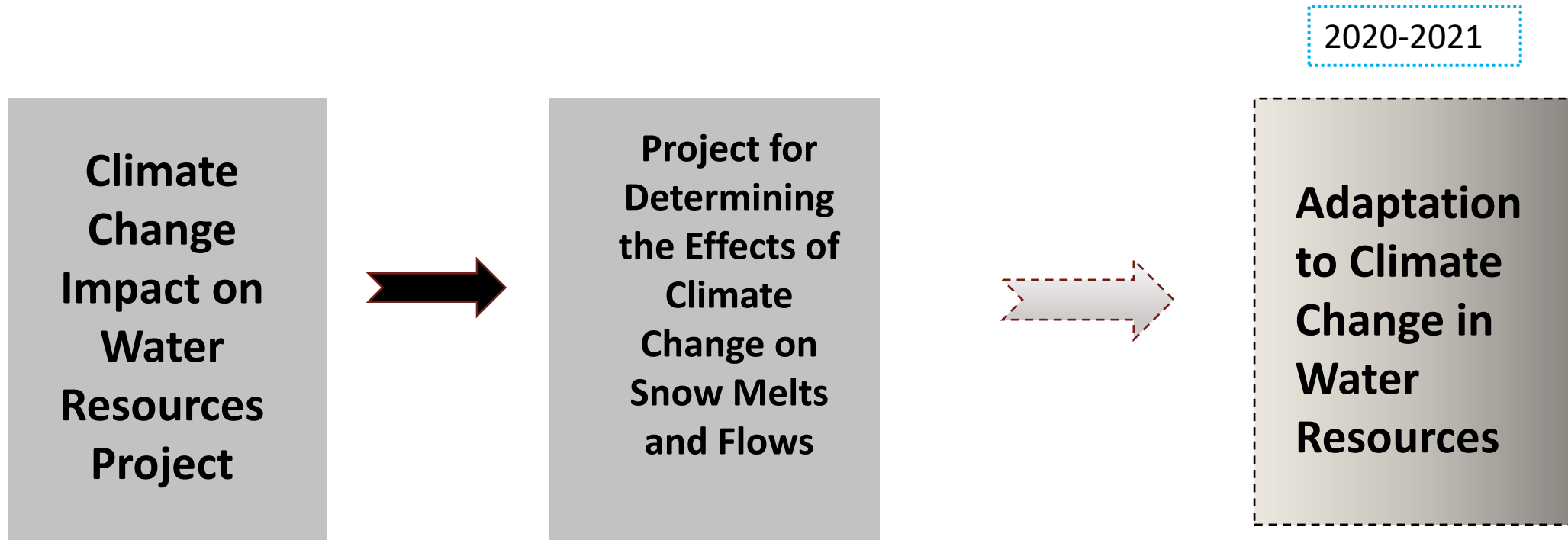


Content

- **Climate Change Impacts on Water Resources of Turkey**
- **Climate Change Impacts on Snowmelt and Streamflows**
- **ClimaHydro Database**
- **Turkish National Water Information System «USBS»**

Climate Change Studies for Water Resources

- Studies to determine the effect of climate change on water resources



Climate Change Impacts on Water Resources

We determined the impacts and many more:

Objective of the Project

- Determining the impact of climate change on surface and groundwater
- Determining river basin scale adaptation measures for our country

İklimSu Database

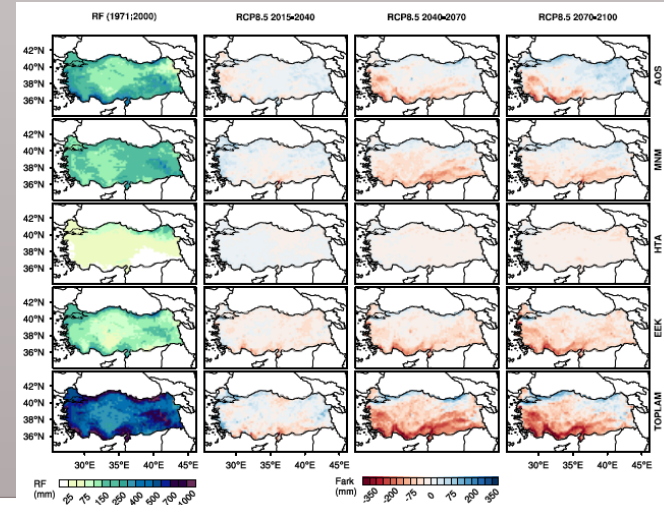
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Climate Projections

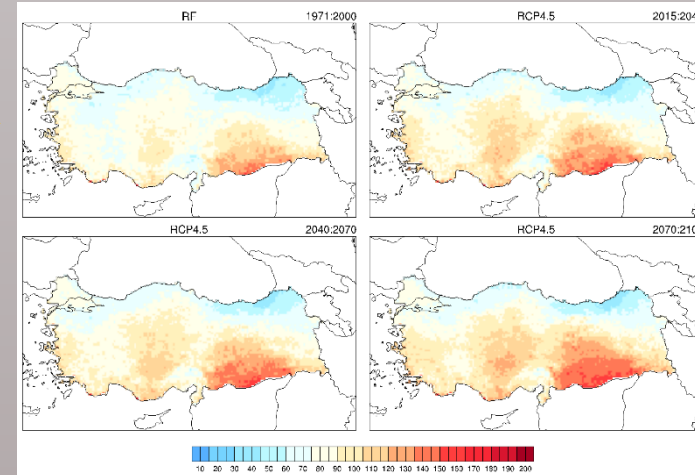
1. Average temperature
2. Maximum temperature
3. Minimum temperature
4. Total precipitation
5. Snow cover
6. Relative humidity
7. Pressure
8. Total radiation

• 8 parameters
 • 10 and 30 yearly average
 • Map and graphics



Days with Frost	Daily Temperature Range
Summer Days 25	Max. 5-day precipitation
Cool Cold Nights	Max. 1-day precipitation
Cool Cold Days	
Hot Nights	(20 mm)
Hot Nights	precipitation Days(25 mm)
Summer Days 35	Consecutive Dry Days
Heat Wave	Consecutive Wet Days
Cold Wave	

• 17 indices
 • 30 years average
 • Map and graphics



Climate Projections

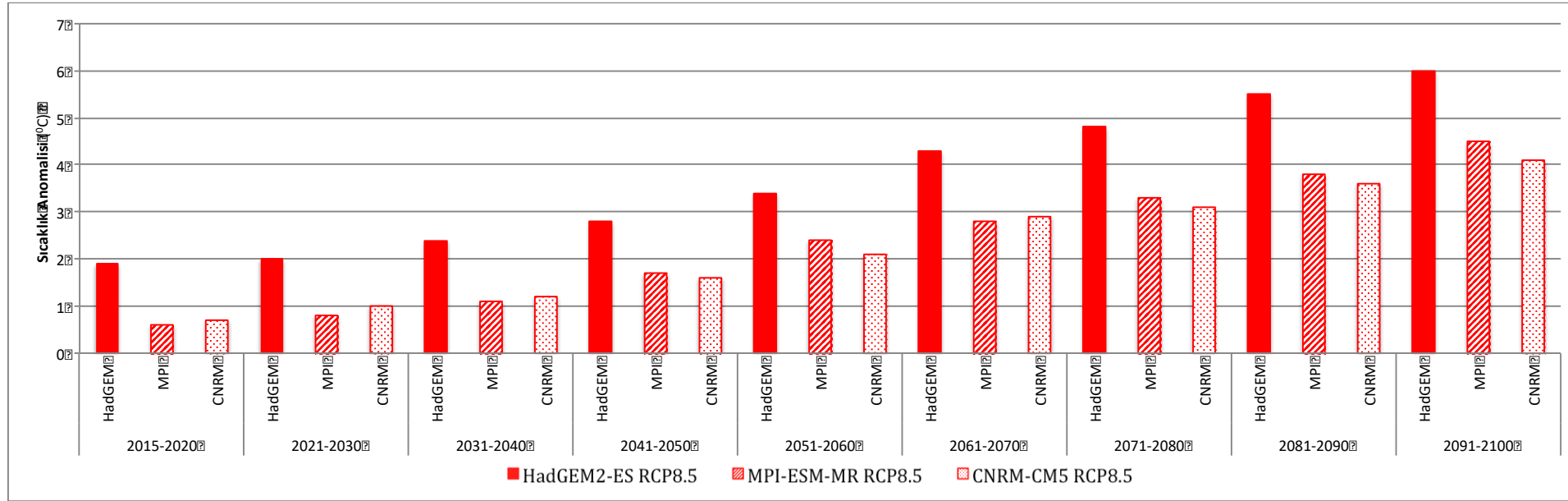
Temperature

Temperature is increasing according to all models and both scenarios.

Temperature Projections

2°C - 3.5°C (RCP4.5)

4.1°C - 6 °C (RCP8.5)



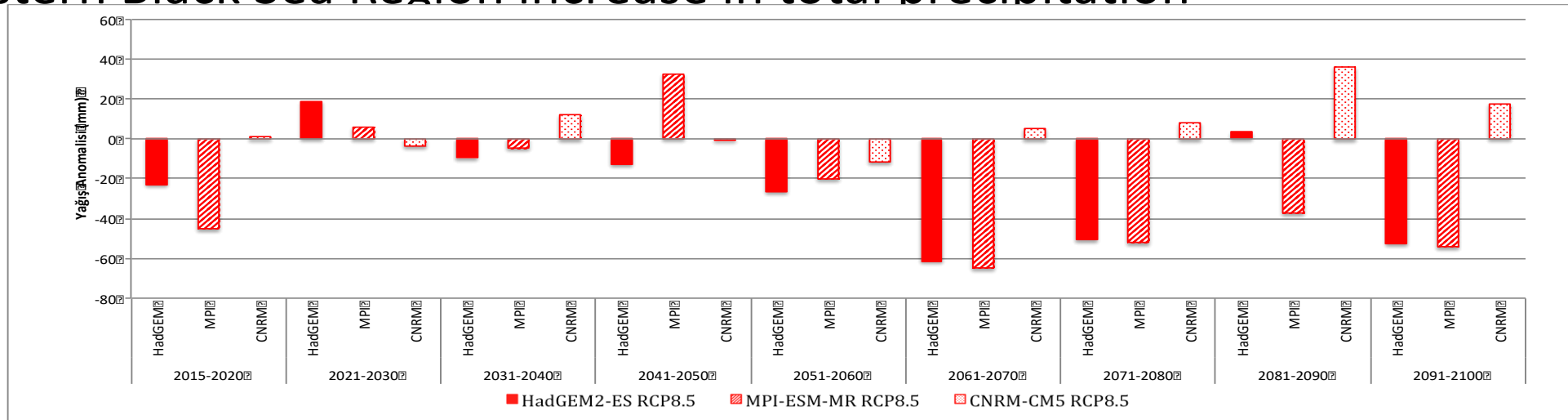
Precipitation

Total precipitation will decrease over all Turkey according to both scenarios.

Amount of decrease in some regions reaches 250-300 mm's (average is 60 mm)

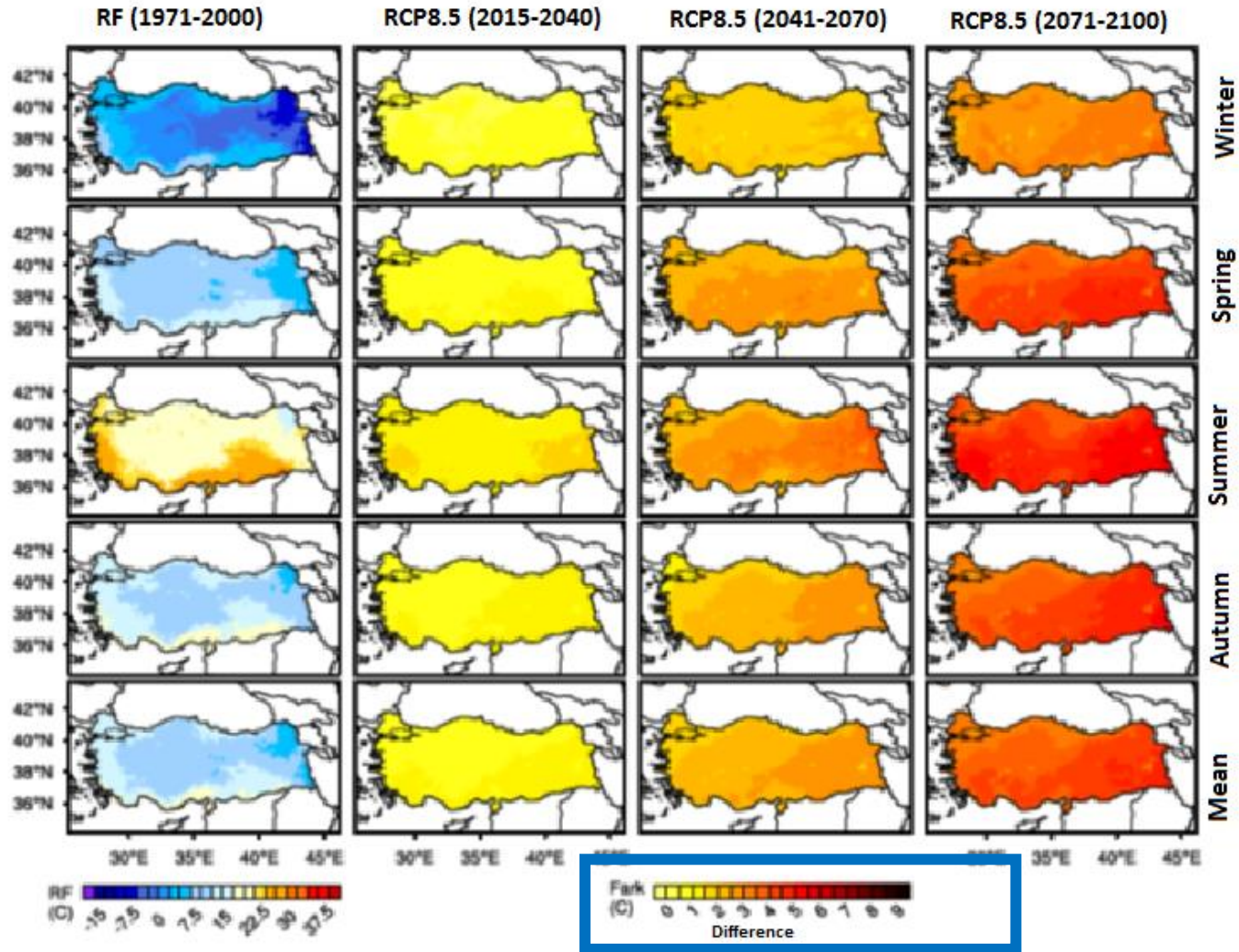
Especially Aegean Region coasts and Southern Eastern and Eastern Anatolia, significant decrease in total precipitation

Eastern Black Sea Region increase in total precipitation



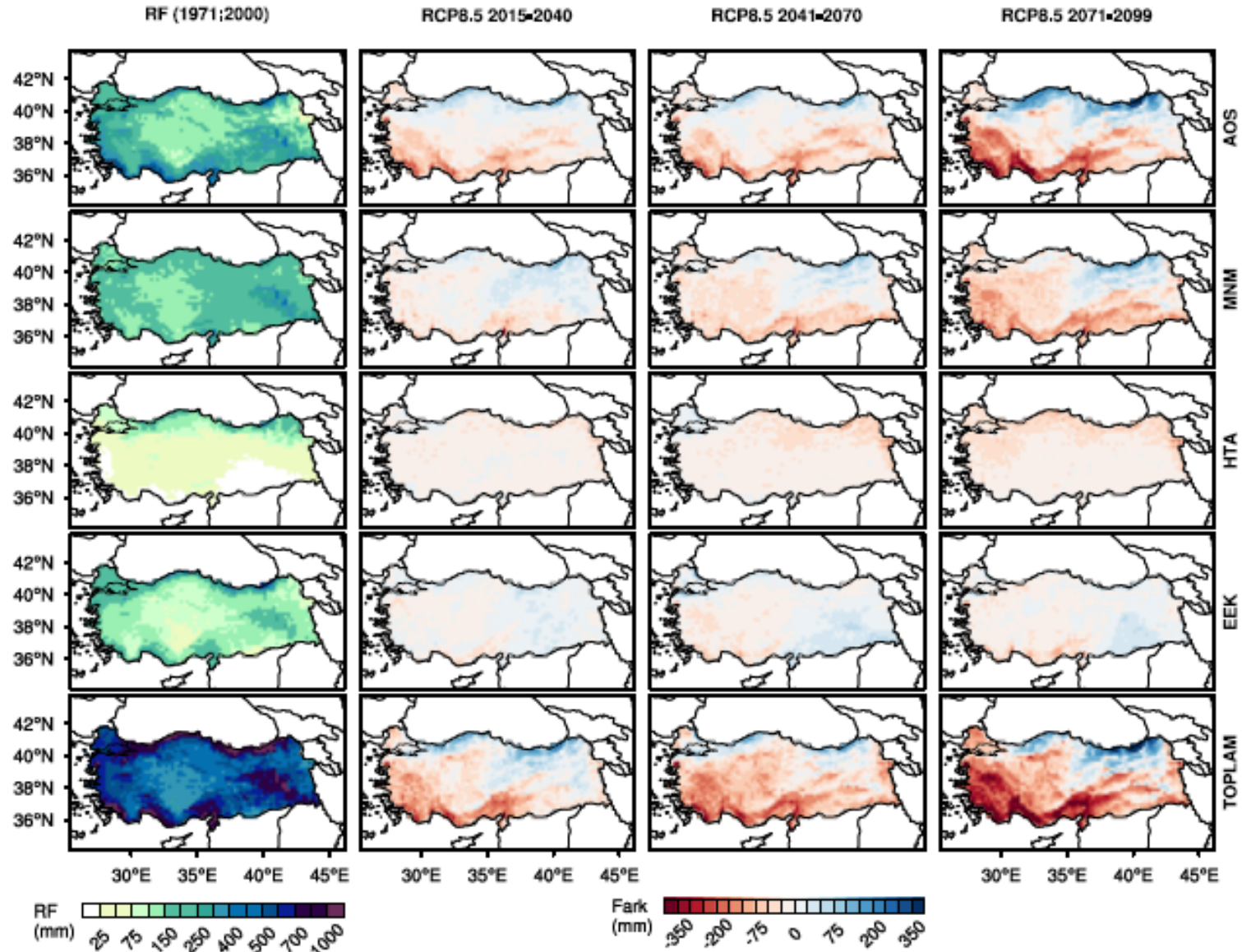
MPI Model_Mean Temperature

RF ve RCP8.5 Model Results (2015-2100)



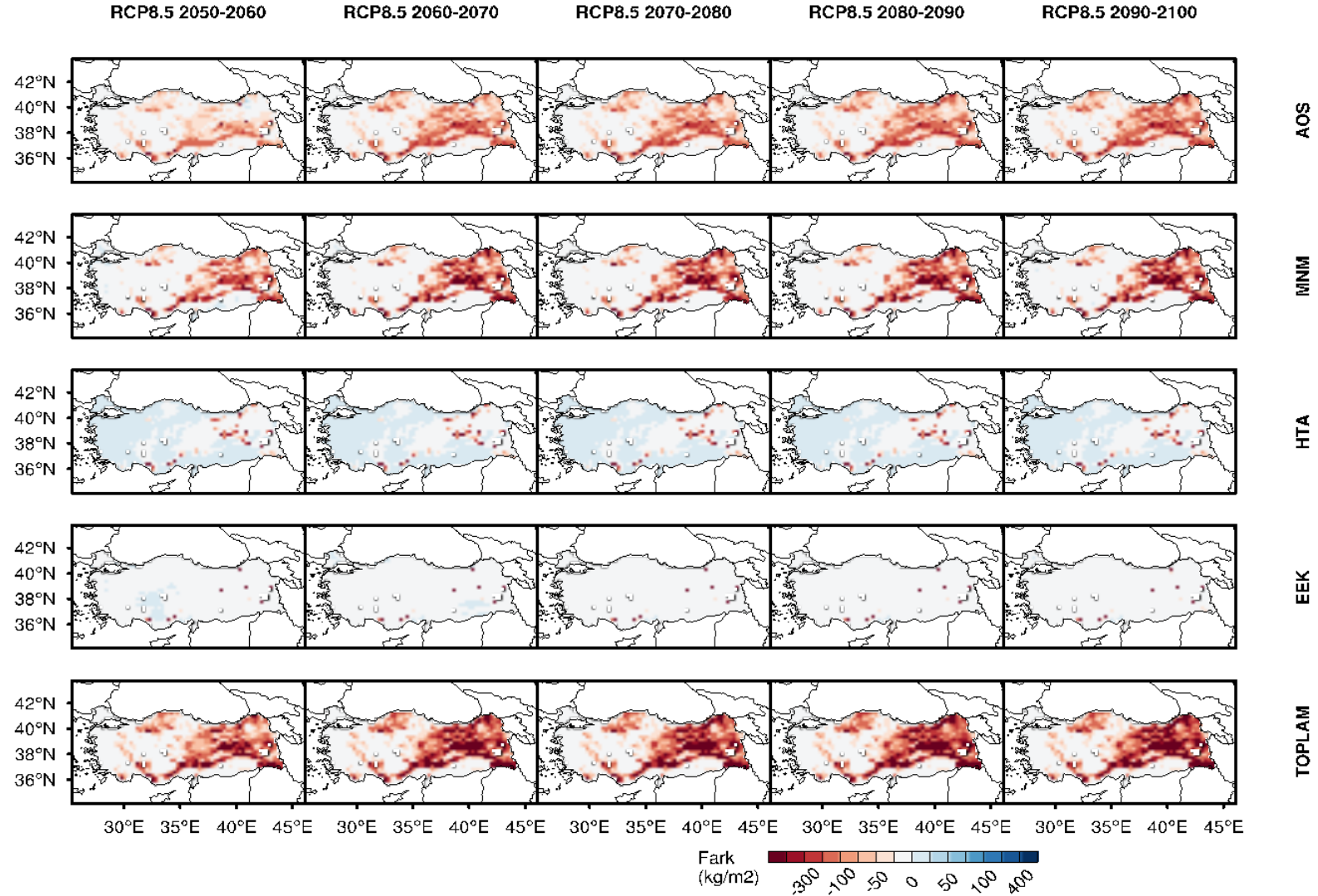
MPI Model_Total Precipitation

RF ve RCP8.5 Results (2015-2100)



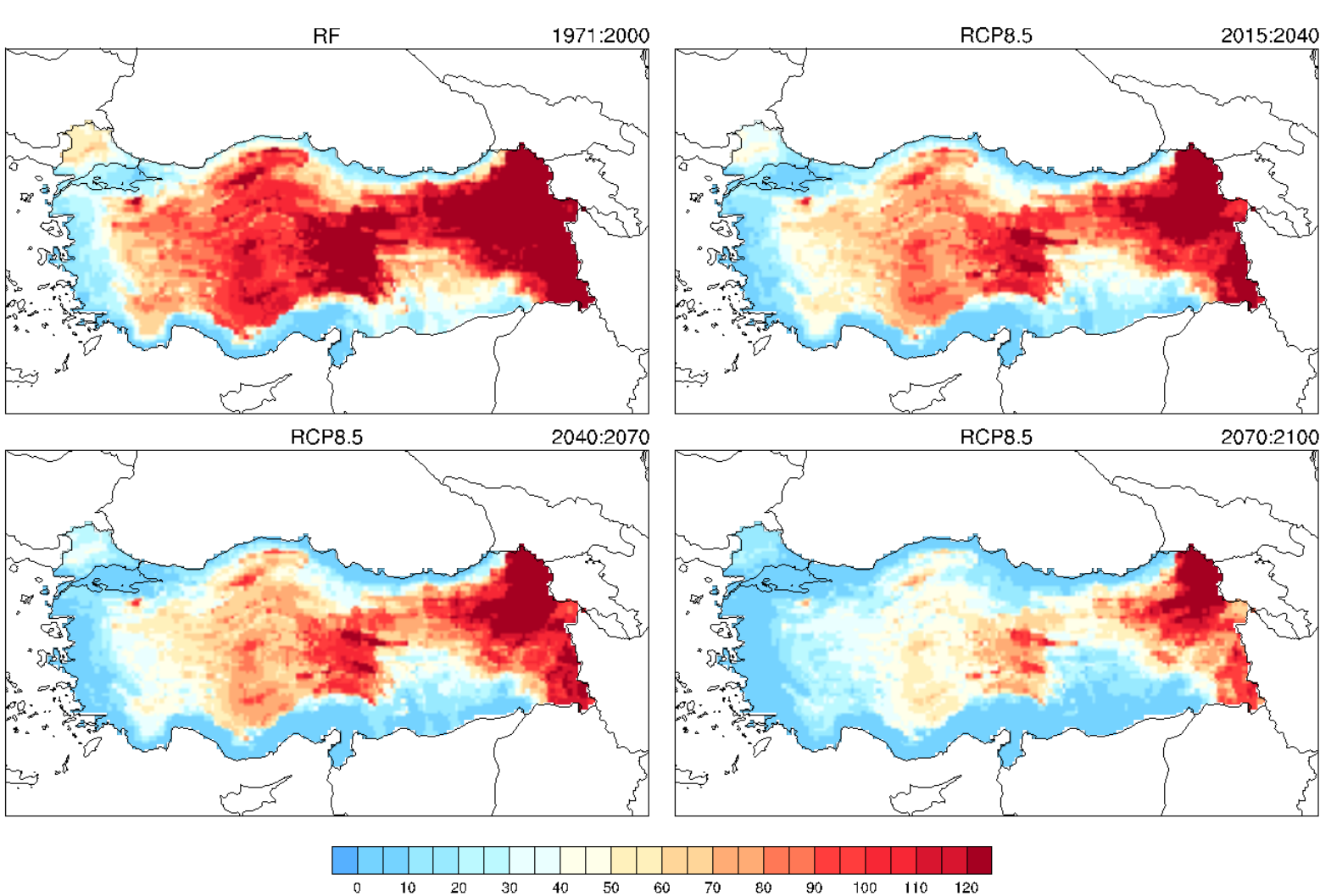
HadGEM2-ES Snow Cover

RF ve RCP8.5 Results (2050-2100)



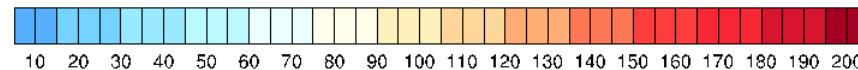
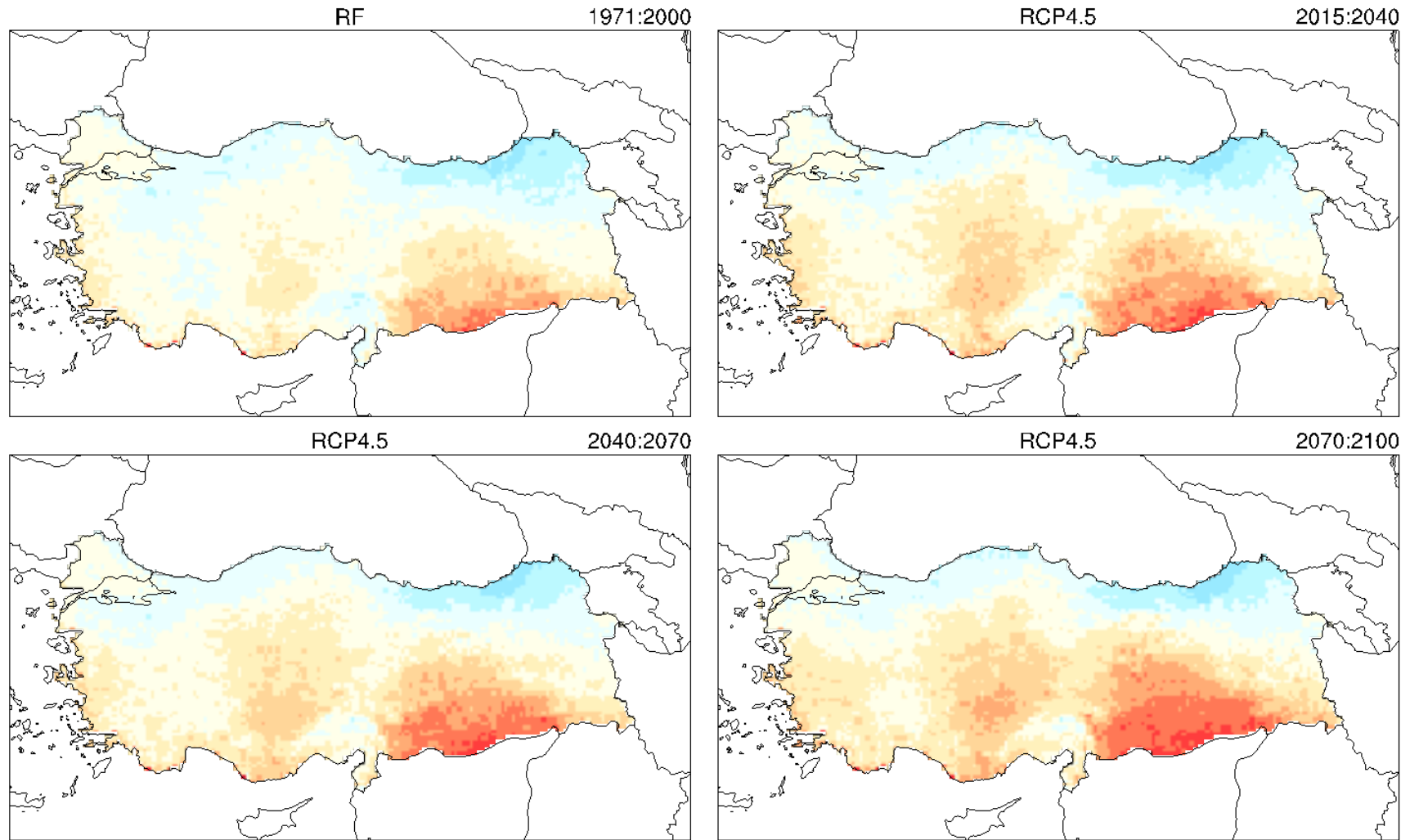
HadGEM2-ES FD0 Climate Index

RF ve RCP8.5 Number of Frost Days /30 years



HadGEM2-ES Model- CDD Climate Index

RF ve RCP4.5 Number of Consecutive Dry Days/30 years



Climate Change Impact on Snowmelt and Streamflow

One plot basin was selected in a snow dominated region in the southeastern region in Turkey.

We analyzed:

- Snow mass in snow-covered areas and altitude relationship
- Snow-water equivalent
- Snow cover extend

We found two important outcome:

- Snowcover areas significantly decrease by up to fifty percent.
- Water availability shifts to early spring months away from summer months when water demand is maximum.

ClimaHydro Database and Website



All data produced which reveal

Climatic

Hydrological projections

is stored in **ClimaHydro Database** and those data and outputs will be able to be interrogated by means of the website.

National Water Information System

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TURKISH NATIONAL WATER
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<http://usbs.tarimorman.gov.tr>

Thank you for your attention.



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