

Spatial and temporal analysis of Iran precipitation

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Research Article

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Spatial and temporal analysis of Iran precipitation

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Abstract:

In this study, spatial and temporal analysis of precipitation in Iran in 2019 and 2020 has been studied. The average annual precipitation in 2019 is about 345 mm and in 2020 285 mm. In 2019, the maximum precipitation was in the western and northwestern regions, and the minimum precipitation was in the central and eastern regions. In 2020, the maximum precipitation was in the northwestern areas and the minimum precipitation was in the central, eastern and southwestern areas. Northwestern regions of Iran have a positive precipitation difference, i.e. in 2020 it had more precipitation. The southern and western regions have a negative difference, i.e. in 2020, there was less rain.

Keywords: Precipitation, Iran, Spatial and temporal analysis, 2020

Introduction

Iran is located in the global arid region and its average precipitation is 250 mm, so that 25% of Iran's soil is in the arid regions, 40% in the arid regions and 25% in the semi-arid regions [1]. Water resources are located in a small part of the country's area and should be transferred from these areas to two thirds of Iran's area, which is one of the water-scarce areas. Given that Iran is one of the regions that will face a water crisis in the future, by 2050 the per capita share of water per person will reach less than one thousand cubic meters. It now has about 95 large dams and 36.5 billion meters. There are 45 large irrigation and drainage networks in the country that cover the equivalent of 1.4 billion hectares of land [2]. Geodesy and satellite data can play a good role in measuring climatic parameters [3-6].

In this study, spatial and temporal analysis of precipitation in Iran in 2019 and 2020 has been studied.

Results

Satellite data between 2019 and 2020 have been used for spatial and temporal analysis of Iranian precipitation. The average annual precipitation in 2019 is about 345 mm and in 2020 is 285 mm. Figures 1 and 2 show the precipitation in Iran in 2019 and 2020. In 2019, the maximum precipitation was in the western and northwestern regions, and the minimum precipitation was in the central and eastern regions. The maximum precipitation in 2019 will reach 650 mm.

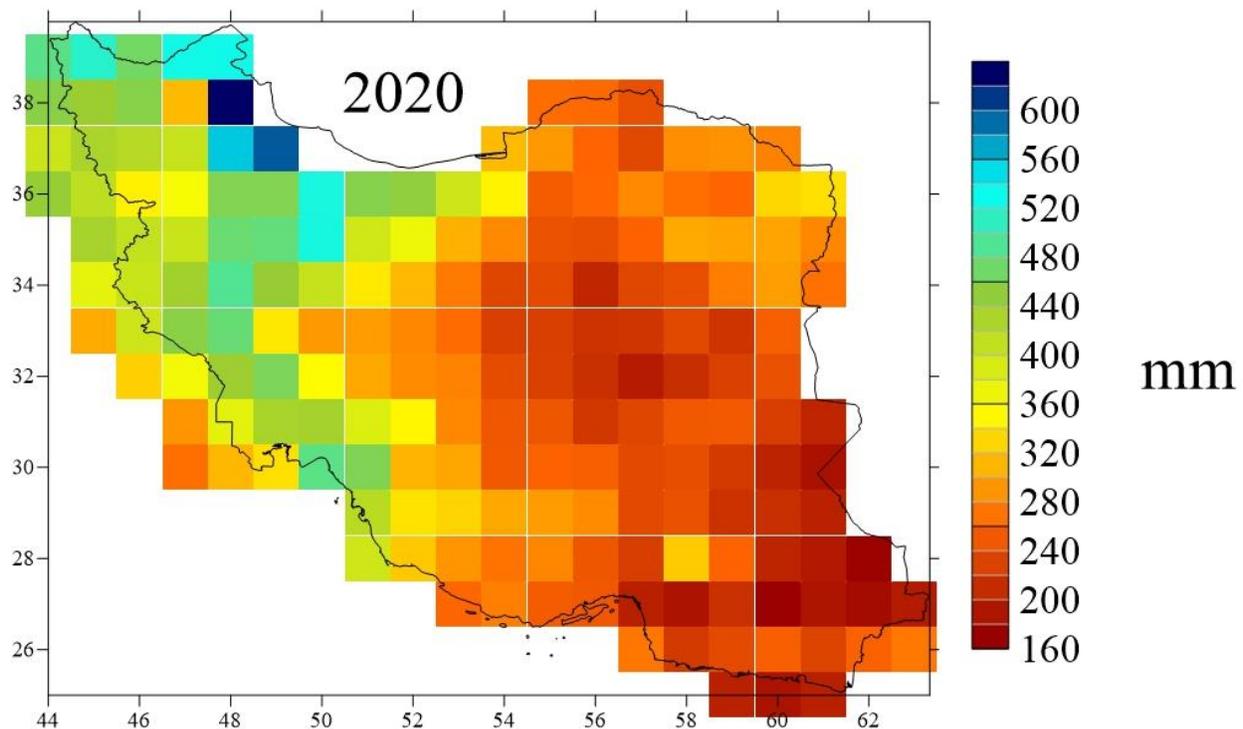


Figure 1 Precipitation in Iran in 2019

In 2020, the maximum precipitation was in the northwestern areas and the minimum precipitation was in the central, eastern and southwestern areas. The maximum precipitation in 2020 will reach 650 mm. Compared to 2019, the precipitation has decreased in 2020.

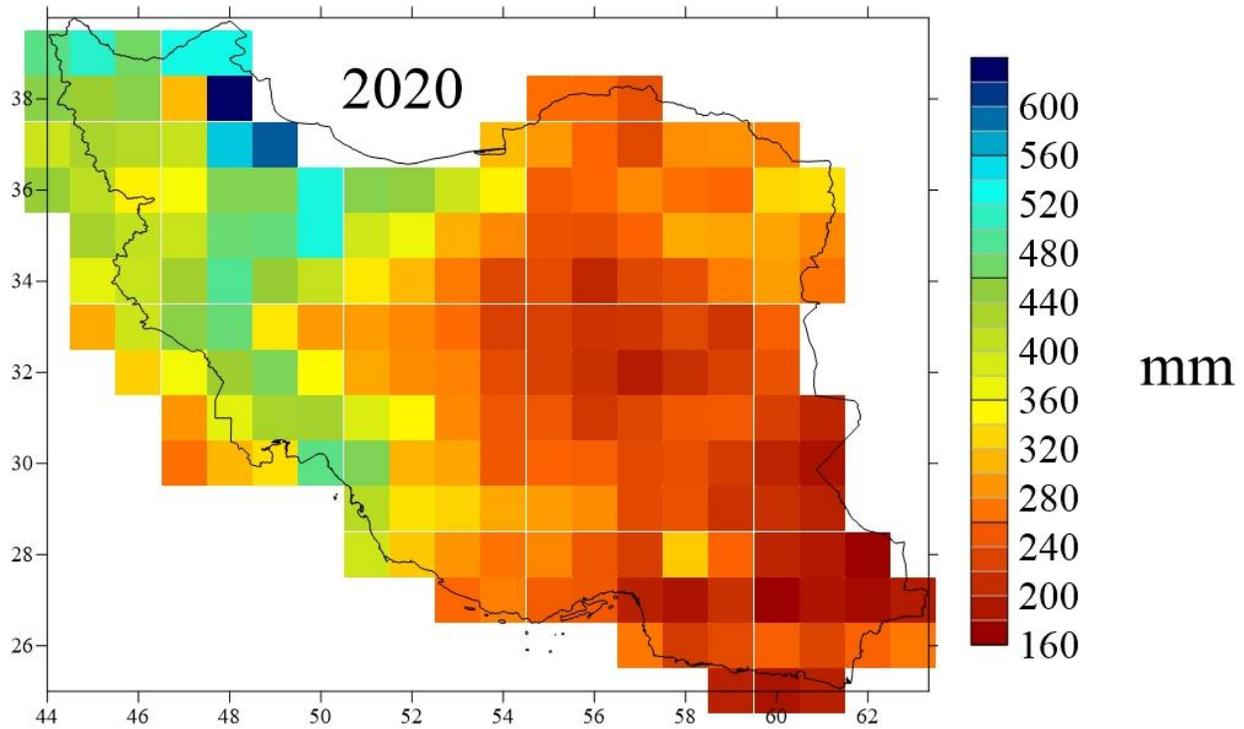


Figure 2 Precipitation in Iran in 2020

The difference in spatial and temporal precipitation of Iran in 2019 and 2020 is shown in Figure 3. Northwestern regions of Iran have a positive precipitation difference, ie in 2020 it had more precipitation. The southern and western regions have a negative difference, ie in 2020, there was less rain.

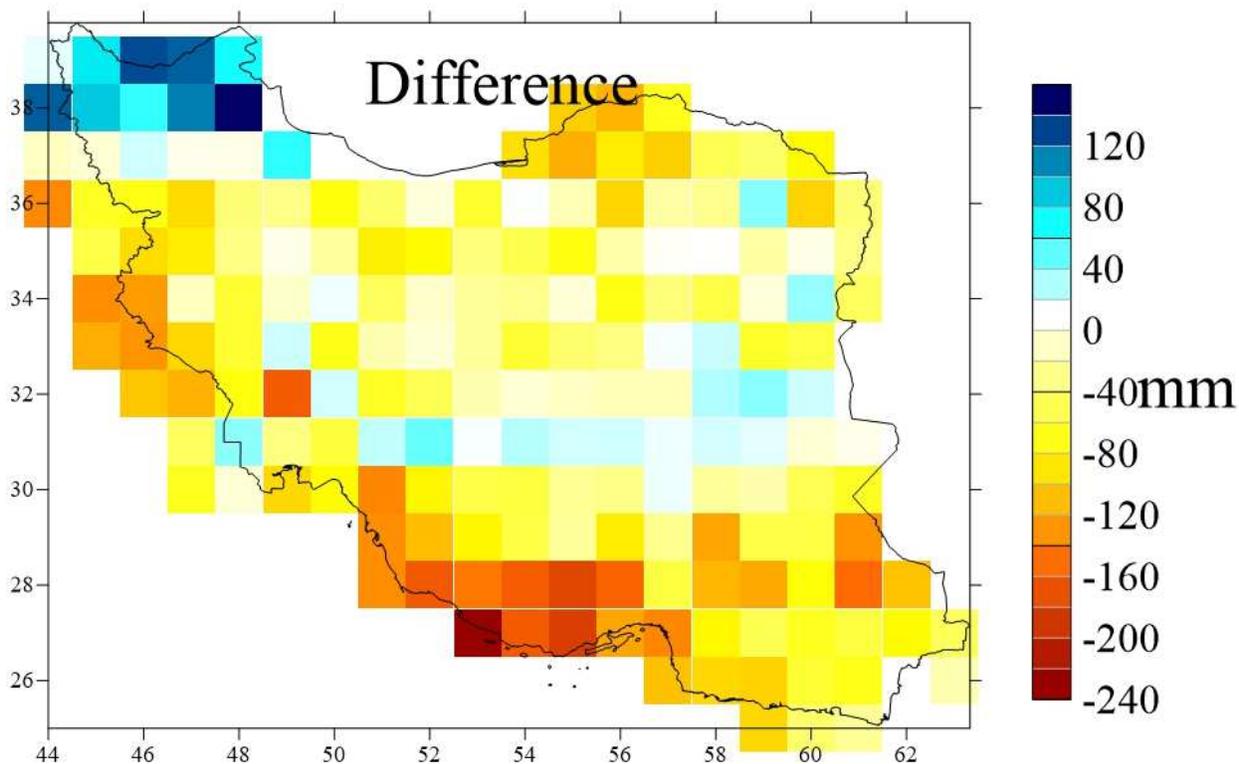


Figure 3: Spatial and temporal differences in precipitation in Iran in 2019 and 2020

Conclusion

In this study, spatial and temporal analysis of precipitation in Iran in 2019 and 2020 has been studied. The average annual precipitation in 2019 is about 345 mm and in 2020 285 mm. In 2019, the maximum precipitation was in the western and northwestern regions, and the minimum precipitation was in the central and eastern regions. In 2020, the maximum precipitation was in the northwestern areas and the minimum precipitation was in the central, eastern and southwestern areas. Northwestern regions of Iran have a positive precipitation difference, ie in 2020 it had more precipitation. The southern and western regions have a negative difference, ie in 2020, there was less rain.

Competing interests:

The authors declare no competing interests.

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Figures

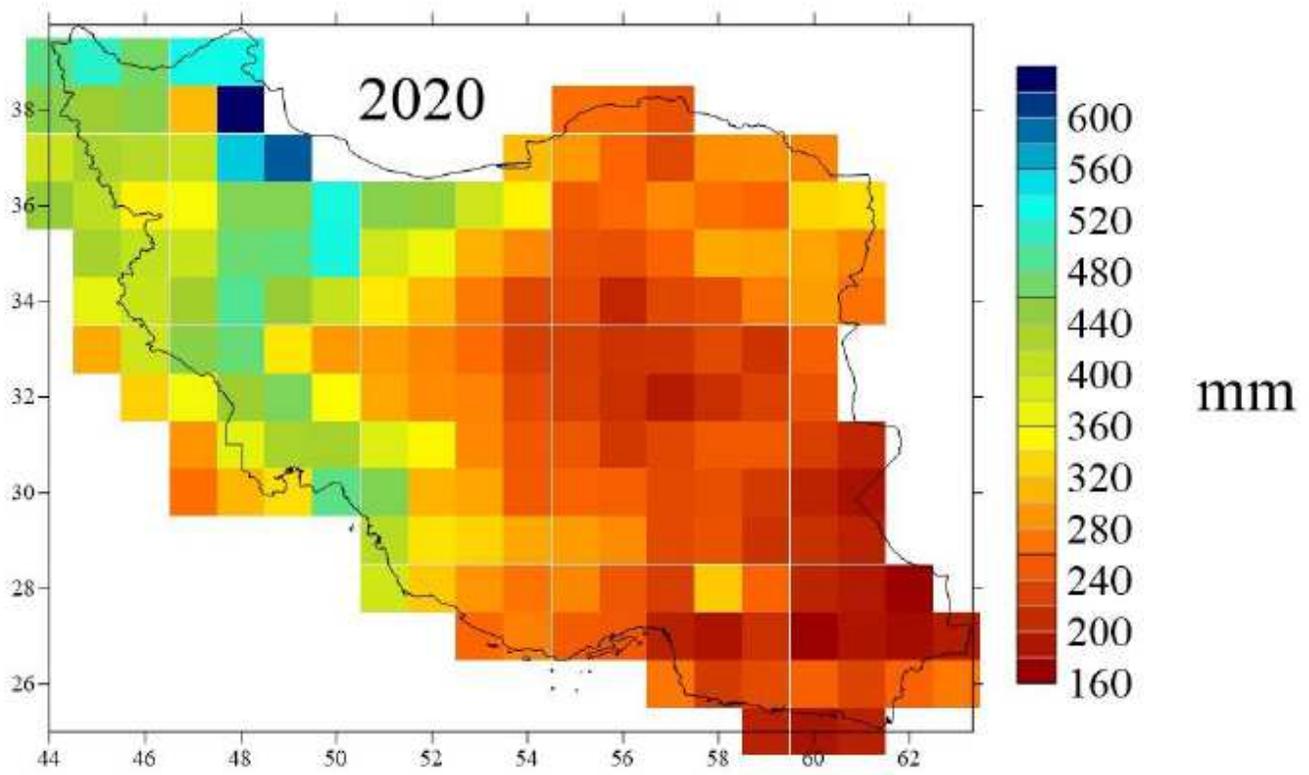


Figure 1

Precipitation in Iran in 2019

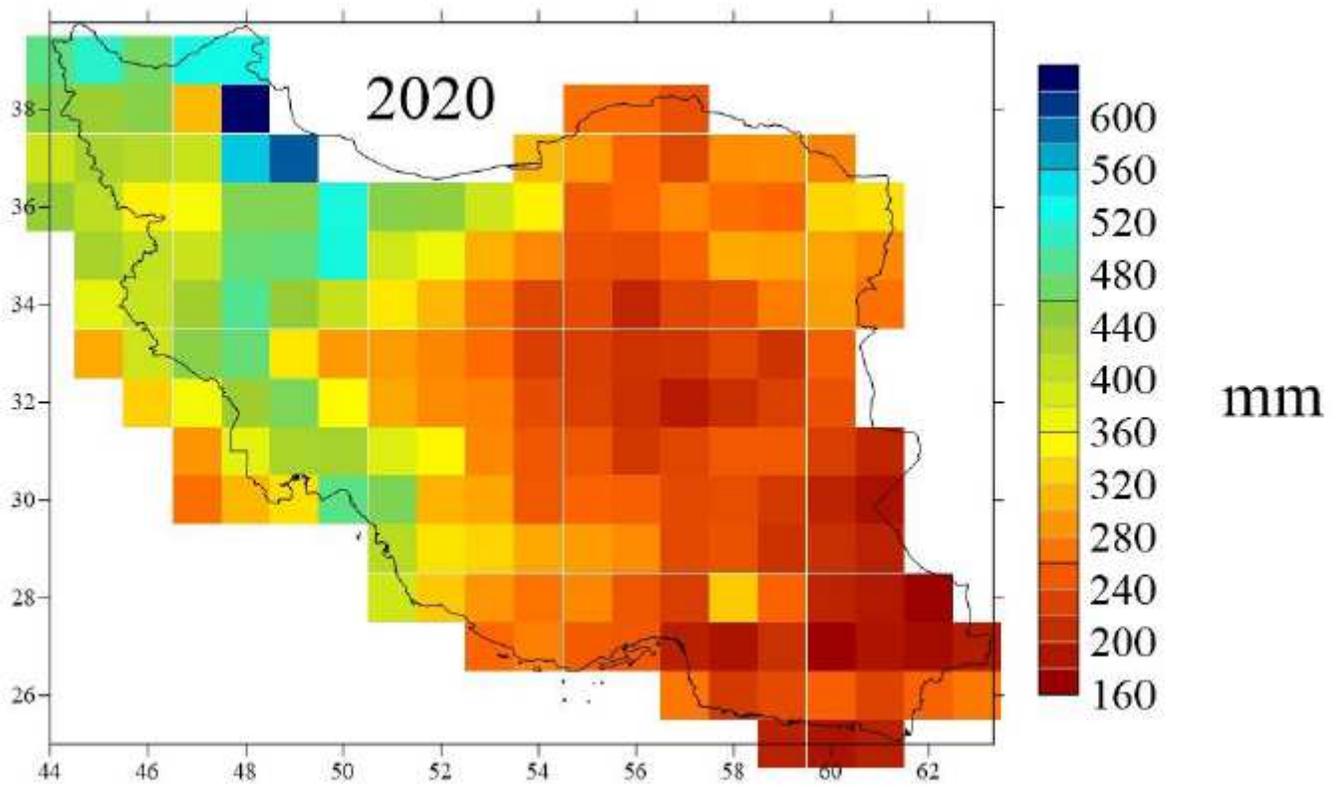


Figure 2

Precipitation in Iran in 2020

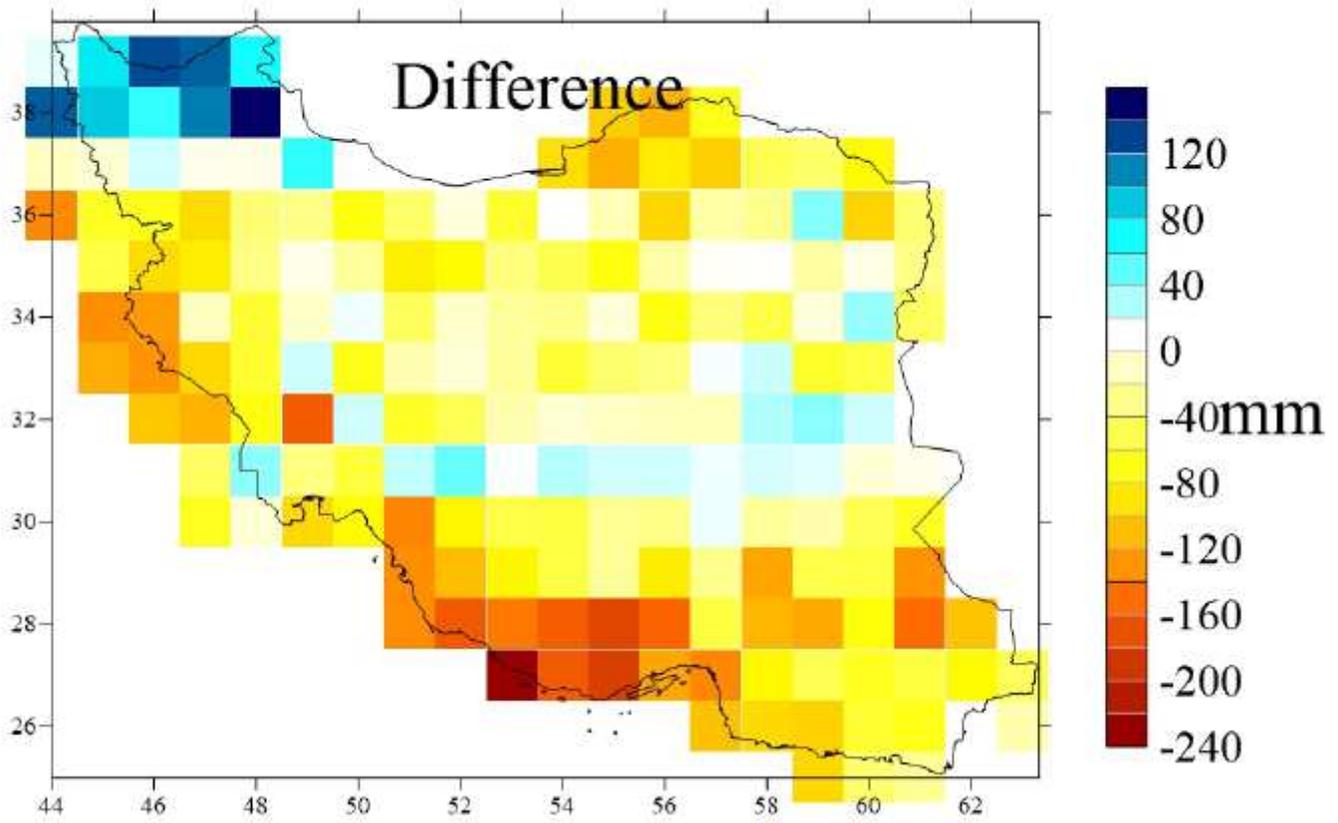


Figure 3

Spatial and temporal differences in precipitation in Iran in 2019 and 2020 Conclusion In