

عنوان مقاله:

Probable Maximum Precipitation (PMP) Prediction Using Rule-Based Fuzzy Inference System, Comparison with Classic Methods

محل انتشار:

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خلاصه مقاله:

Predicting precipitation is tried for different days of the year using fuzzy logic; Mamdani fuzzy system, and IF-THEN rules. As many as 5 parameters including relative humidity, amount of cloud, wind direction, temperature, and surface pressure are considered as input variables. Each one consists of three membership functions ranged from zero and one. The final answer will likely be the amount of rainfall. All input variables are fuzzy and two types of membership functions are selected. As many as 51 rules are considered for each station. Finally, the best situation of precipitation is chosen and obtained PMP is used to calculate for Kahir catchment basin, Sistan and Baluchistan. The fuzzy PMP is calculated then considered and compared with Hershfield classic method for calculating PMP. Results show that fuzzy PMP estimation is more accurate and reliable for the area under consideration in comparison with Hershfield method. All implementations are performed with MATLAB.

کلمات کلیدی:

Fuzzy logic, Mamdani fuzzy inference system, Probable Maximum Precipitation (PMP), Hershfield classic method

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