INTISARI

Bantul merupakan kabupaten di Daerah Istimewa Yogyakarta yang sering terkena bencana kekeringan. Hampir setiap tahun beberapa kecamatan mengalami kekeringan seperti Kecamatan Dlingo, Imogiri, Pajangan, dan sebagian Kecamatan Piyungan dan Kasihan. Penelitian ini bertujuan untuk menilai tingkat kekeringan meteorologis dan persebarannya baik pada masa lalu maupun masa depan, serta menyusun rumusan beberapa hal penting dalam upaya mitigasi bencana kekeringan.

Penelitian ini menggunakan *Standardized Precipitation Index* (SPI), *Standardized Precipitation Anomaly Index* (SPAI) dan *Modified Standardized Precipitation Index* (MSPI) dengan data hujan harian dari 12 stasiun hujan. Metode SPAI digunakan untuk menilai sejauh mana metode tersebut menutupi kelemahan metode SPI. Proyeksi hujan mengggunakan model iklim HadCM3 dengan skenario emisi gas rumah kaca A2 dan B2 serta metode *statictical downscalling*. Indeks kekeringan hasil analisis metode SPAI dan MSPI kemudian digunakan untuk membuat peta ancaman kekeringan dengan menggunakan perangkat lunak Sistem Informasi Geografi (SIG).

Hasil menunjukkan bahwa kekeringan eksisting terjadi di Kecamatan Dlingo, sebagian Kecamatan Piyungan dan Sedayu. Berdasarkan proyeksi hujan skenario A2a, daerah rawan kekeringan terjadi di Kecamatan Piyungan, Sanden, dan sebagian Kecamatan Sedayu sedangkan berdasarkan skenario B2a daerah rawan kekeringan terjadi di Kecamatan Sanden, Pundong, Kretek, sebagian Kecamatan Piyungan, dan Banguntapan. Berdasarkan grafik hubungan curah hujan kumulatif dan indeks kekeringan, wilayah studi berpotensi kekeringan dengan rata-rata curah hujan tahunan di bawah 1200 mm/tahun, kecuali untuk Kecamatan Dlingo di bawah 900 mm/tahun. Nilai-nilai tersebut bisa digunakan untuk mitigasi bencana kekeringan. SPAI dapat menutupi kelemahan SPI di wilayah studi dengan skala waktu 1, 3, dan 6 bulan, di atas skala waktu tersebut nilai SPAI sama dengan SPI. MSPI cocok untuk penyediaan tanaman karena dapat menilai lebih kering (basah) diantara curah hujan kumulatif yang sama sehingga baik untuk analisis kekeringan pertanian dan penyediaan tanaman.

Kata kunci: SPI, SPAI, MSPI, HadCM3, mitigasi

ABSTRACT

Bantul is a regency in Yogyakarta that is often affected by drought. Almost every year some districts experienced drought such as Dlingo, Imogiri, Pajangan, and some areas in Piyungan and Kasihan. This study aims to assess the level of meteorological drought and its spread in the past and the future, as well as to formulate some important things in drought disaster mitigation acts.

This study used Standardized Precipitation Index (SPI), Standardized Precipitation Anomaly Index (SPAI) and Modified Standardized Precipitation Index (MSPI). Data used was daily rainfall data that was from 12 rain stations. SPAI was used to assess how well this method could cover up the shortcomings of SPI. Rain Projection used climate model of HadCM3 with gas emission scenarios of A2 and B2. *Statictical downscalling* method was used to get regional rain data. Drought indices of SPAI and MSPI were then used to create a drought hazard map by using Geographical Information Systems (GIS) software.

The analysis results showed that the existing drought occurred in Dlingo District, some areas in the districts of Piyungan and Sedayu. Based on the rain projection-scenario A2a, drought-prone areas occurred in the districts of Piyungan and Sanden, and some areas in Sedayu District while based on B2a scenario, drought-prone areas occurred in the districts of Sanden, Pundong, Kretek, and some areas in the districts of Piyungan and Banguntapan. Based on the graph between cumulative rainfall and drought index, study areas could potentially experience drought if the average annual rainfall was below 1200 mm, except for Dlingo District below 900 mm/year. Those values could be used as a drought mitigation. SPAI could cover up the shortcomings of SPI in the study area with the time scales of 1, 3, and 6 months, over 6 months SPAI values were equal to SPI. MSPI was suitable for the provision of plants because it could assess drier (wetter) between the same/similar cumulative rainfalls, and MSPI could be used for the analysis of agricultural drought and crop supply.

Keywords: SPI, SPAI, MSPI, HadCM3, mitigation