Abstract Details

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Title: Impact of Climate Change to Dry Land Water Budget in Indonesia: Observation during 1980-2002 and Simulation for 2010-2039

Abstract:

In the tropic region as Indonesia, rainfall is the most sensitive meteorological parameter for climate changes, and particularly irregu and changes of distribution of rainfall give a serious impact such as dı and flooding. Changes of climate such as temperature and rainfall in v spatial and temporal scales are increasing and will induce surplus and period of water availability. In agricultural sector, they are the most important factors for determining growing period, planting period, typ crops and production. Moreover, they are main factors behind food se Daily rainfall, maximum and minimum temperature from 1980 to 200 selected stations of agro-meteorology type A were collected and divid the previous (1980-1992) and the recent (1993-2002) decades. Thos stations are located in the central areas of agriculture production in w Sumatra (Gunungmedan and Bandarbuat), Lampung (Tamanbogo), w (Cimanggu, Muara, Pacet and Margahayu) and east Java (Mojosari, G Ngale, and Jambegede) and south Sulawesi (Maros and Bontobili). Th data were used for anomaly frequency analysis, linear regression of d rainfall and temperature, and tendency of annual rainfall. Dry land wa budget at Tamanbogo and Maros, were analyzed by using Thornthwai Mather (1957) method. In order to predict future climate condition fo period 2010-2039, ARPEGE climate version 3.0 model incorporating a increase of CO2 was used. The rainfall increase appeared significantly Genteng. The frequency analysis showed that the amount of daily rai 150 mm/day increased 15% till 3000% in recent decade. Other regio positive anomalies are Pacet, Maros, and Bontobili. Tamanbogo, Marg Mojosari and Ngale stations do not show clear tendencies. The maxim temperature frequency analysis shows that most stations have increa days with temperature higher than 38oC such as about 4.38% in Jam and 1627.4% in Pacet, except for Gunungmedan and Bandarbuat. Th frequencies of minimum temperature of 16-20oC and 26-30oC in the decade at the most stations are higher than in the previous decade. T result of ARPEGE model showed that in the future rainfall zone will ch Positive rainfall anomaly around 220-439 mm/year for average from A September is indicated in South Sulawesi, East Java, and North of Kalimantan. From March to October positive anomaly between 73 anc than 293 mm/year is distributed from Karimata strait, Banda to Arafu The long growing period in Tamanbogo for the previous period is abou