



Climate Law: Evaluating Impacts of Climate Change on Outer World Resources

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Editorial

Climate change assessment in Omo-Gibe III basin showed a significant monthly and seasonal variation compared to annual changes. The results also presented the fact that climate change is highly uncertain as the results were varying widely with models, scenarios and time frames. Almost consistent results were obtained on projected temperature changes with the models. It was found that temperature in future is supposed to increase. The maximum and minimum temperatures are projected to increase for both-time horizons with largest increase under RCPs 8.5 scenario [1]. From the result it can be seen that the near term period average mean seasonal maximum temperature has a tendency of greater warming on winter season in both scenarios of RCPs while in midterm period the spring season is the warmest season, with the largest increase under RCP8.5. Compared to the base line period the ensemble of most of the models indicates the total annual and seasonal precipitation show increasing in near term period (2011-2030) compared to midterm (2031-2050) as projected under the RCP4.5 [2]. In midterm periods, climate models predicted that a decrease in rainfall in all seasons of the year except for autumn season under RCP4.5 scenario, rainfall is largely predicted to increase by 36.57% compared to the base line period. Results of seasonal distribution clearly shows that the precipitation scenarios by mid-term are supposed to be more critical compared to near term due to drier wet seasons spring and summer months under most of the Models and the ensembles in both RCPs. The autumn season is supposed to be wetter than summer and spring season in the near term period under both scenarios and in the midterm period under RCP4.5. The predicted change in the mean annual flow from 2011–2030 is estimated as greater than 10% increase from GCMs ensemble mean. Seasonal analysis reveals an increase in flows in all months of around 10% to 50%, and there is also an increase in months (Sep to Feb) of around 10% to 55% estimated during period 2011–2030 [3]. Under RCP4.5 all GCMs models show projected increase of flow. During the period 2031–2050 an increase in the Flows in spring and autumn months (Mar to May and Sept to Nov) of around 10% to 37%, and a slight increase in summer months (Jun to Aug) of around 1% to 3% estimated from GCMs ensemble mean. Under

this scenario two of the GCMs models projects decrease of flow. Under climate scenario RCP8.5, an increase in flows in spring and autumn months (March to May and Sept to Nov.) of around 10% to 35.8%, and a slight increase in summer months (November to March) of less than 1% estimated during the period 2011–2030 from RCMs ensemble mean. During the period 2031–2050 under RCP8.5 climate scenario the seasonal analysis reveals, in flows will be projected to decrease in all seasons of the year which indicates a large projected decrease in the flows of RCMs climate models [4]. The change in mean annual stream flow from 2011–2030 are mostly positive and indicate increase in available discharge in the river under RCP4.5 and RCP8.5 scenarios and from 2031-2050 under RCP4.5 compared to the baseline period. Flow duration curves showed that the probability of occurrence of high flow will be more in the future, relative to the baseline flows. The overall conclusion of the study is that Gibe III basin is likely to face more floods in both future periods while low flows are projected to decrease [5].

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Conflict of interest

None

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