

# Preface

The Japan Meteorological Agency (JMA) has published annual assessments under the title of *Climate Change Monitoring Report* since 1996 to highlight the outcomes of its activities (including monitoring and analysis of atmospheric, oceanic and global environmental conditions) and provide up-to-date information on climate change in Japan and around the world.

In 2016, the formation of the first tropical cyclone (TC) over the western North Pacific basin was the second-latest ever recorded. In August, the front line and successive typhoons (including the first recorded landing from the Tohoku Pacific Ocean side of Japan) brought heavy rainfall and caused serious damage to northern Japan. Elsewhere, major disasters were caused by record rainfall in the Chang Yangtze River basin (April to July), droughts in Southeast Asia (January to May), heatwave conditions in India (March to May) and a hurricane in Haiti (October). The remarkable El Niño phenomenon that prevailed from 2014 to the spring of 2016 continued to affect weather in Japan and around the world, contributing to the third consecutive record-high annual global average temperature. In this way, extreme weather and climatic phenomena adversely affected society and economic activity in various places in 2016.

The fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC) suggests that changes in the characteristics of many extreme weather and climate events have been observed since around 1950. The report specifies a high likelihood that extreme phenomena such as very high temperatures will last longer and be more frequent, and that heavy precipitation events will be more intense and more frequent in numerous regions. In response to such climate change impacts, the Paris Agreement (a new related countermeasure framework) went into effect in November 2016. Japan's government formulated the National Plan for Adaptation to the Impacts of Climate Change in November 2015 ahead of the Paris Agreement. In line with this plan, national and local governments are currently taking steps to address climate change.

This report summarizes post-El Niño impacts and associated remarkable climate phenomena, and presents recent JMA scientific data, information and findings. It is intended to provide a scientific basis for better implementation of measures relating to climate change and to raise awareness of global environmental issues.

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