

## Trend in the Frequency of Heavy Rainfall events during the Last Half Century over Japan

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(Received 1 March 2004 ; Accepted 17 September 2004)

### Abstract

The trend in the frequency of heavy rainfall events, which are defined by six time scales (1-, 3-, 6-, 12-, 24-hour precipitations and accumulated precipitation) and three threshold values (2, 5, and 10 years probability precipitations), was analyzed by using hourly precipitation data at 18 meteorological observatories in Japan from 1950 to 2003. In the warm season (from May to October), on the whole, the frequency of heavy rainfall events was high from 1950 to the early 1960's and low from the late 1960's to the 1980's, and was highest after 1990. However, the frequency of 3- and 6-hour precipitation events above the 2 years probability is high only after 1990. The increasing trend in the frequency of heavy rainfall events during the latter half of these 54 years is significant at the 5% level for most of the time scales and threshold values of heavy rainfall, although the decreasing trend during the early half is statistically significant for only limited time scales or threshold values. The high frequency of heavy precipitation events above the 2 years probability after 1990 is found both for the Baiu season (from May to July) and the typhoon season (from August to October), apart from some differences according to the time scale of heavy rainfall.

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2. 授賞候補者：日本国籍を持ち、日本在住の方。
3. 授賞内容：賞状、賞牌、副賞として1千万円。
4. 推薦に必要な資料：推薦要項書、主要論文テーマ

(10篇以内)のリスト、主要論文3篇以内の別刷(コピーでも可)各1部。

5. 推薦締切：2005年1月31日(月)

6. 推薦書送り先：

〒104-0061 東京都中央区銀座3-7-12

王子不動産銀座ビル 藤原科学財団

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受賞者の決定は2005年5月中旬、贈呈式は6月中旬の予定です。賞に関する詳細は財団ホームページ <http://www.fujizai.or.jp/> を参照するか、気象学会事務局におたずね下さい。