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From: **Fairley, Helen** <hfairley@usgs.gov>

Date: Mon, Mar 3, 2014 at 3:44 PM

Subject: new usgs publication available

To: Linda Whetton <lwhetton@usbr.gov>

Linda,

Would you please forward this message to the TWG and AMWG mailing lists? Thank you!

Dear colleagues,

We are pleased to announce the availability of a new USGS Open File Report titled: **Precipitation Variability of the Grand Canyon Region, 1893 through 2009, and Its Implications for Studying Effects of Gullying of Holocene Terraces and Associated Archeological Sites in Grand Canyon, Arizona.**

Abstract

A daily precipitation dataset covering a large part of the American Southwest was compiled for online electronic distribution (<http://pubs.usgs.gov/of/2014/1006/>). The dataset contains 10.8 million observations spanning January 1893 through January 2009 from 846 weather stations in six states and 13 climate divisions. In addition to processing the data for distribution, water-year totals and other statistical parameters were calculated for each station with more than 2 years of observations. Division-wide total precipitation, expressed as the average deviation from the individual station means of a climate division, shows that the region—including the Grand Canyon, Arizona, area—has been affected by alternating multidecadal episodes of drought and wet conditions.

In addition to compiling and analyzing the long-term regional precipitation data, a second dataset consisting of high-temporal-resolution precipitation measurements collected between November 2003 and January 2009 from 10 localities along the Colorado River in Grand Canyon was compiled. An exploratory study of these high-temporal-resolution precipitation measurements suggests that on a daily basis precipitation patterns are generally similar to those at a long-term weather station in the canyon, which in turn resembles the patterns at other long-term stations on the canyon rims; however, precipitation amounts recorded by the individual inner canyon weather stations can vary substantially from station to station. Daily and seasonal rainfall patterns apparent in these data are not random. For example, the inner canyon record, although short and fragmented, reveals three episodes of widespread, heavy precipitation in late summer 2004, early winter 2005, and summer 2007. The 2004 event and several others had sufficient rainfall to initiate potentially pervasive erosion of the late Holocene terraces and related archeological features located along the Colorado River in Grand Canyon.

Suggested citation:

Hereford, R., Bennett, G.E., and Fairley, H.C., 2014, Precipitation variability of the Grand Canyon region, 1893 through 2009, and its implications for studying effects of gullying of Holocene terraces and

associated archeological sites in Grand Canyon, Arizona: U.S. Geological Survey Open-File Report 2014–1006, 23 p., <http://dx.doi.org/10.3133/ofr20141006>.

This publication is available at <http://pubs.usgs.gov/of/2014/1006/>. After the Digital Object Identifier (DOI) and product metadata have been registered by CrossRef, the official URL will be <http://dx.doi.org/10.3133/ofr20141006>.

Enjoy!

Helen

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Helen Fairley, Social Scientist
US Geological Survey
2255 N. Gemini Drive
Flagstaff, AZ 86001

phone: 928-556-7285

email: hfairley@usgs.gov