



Assessing Gaps in the U.S. Geological Survey Streamgage Network

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Streamgages are widely used for a variety of purposes ranging from operational support of water management facilities to flood monitoring to scientific analysis of streamflow and ecological processes. The U.S. Geological Survey (USGS) operates the largest streamgage network in the U.S., with nearly 8,000 gages currently in operation. This study assesses the spatial and temporal extent of the network, with particular attention to the adequacy of the network for estimating streamflows and streamflow statistics at ungaged locations. There are clear regional differences in the availability of streamgage information and in the transferability of that information to ungaged locations. In particular, arid and semi-arid regions tend to have the poorest network coverage, and the high interannual variability in streamflow in these regions leads to large uncertainty in streamflow statistics calculated at gaged locations using short records. USGS streamgages are also particularly sparse in Alaska and Hawaii. At ungaged locations, information can be transferred from nearby streamgages if there is sufficient similarity between the gaged watersheds and the ungaged watersheds of interest. The correlation between streamflow records at existing streamgages was used to assess the likely transferability of streamflow information. The highest correlations were found in mountainous areas of the U.S., while the lowest correlations were found in the central U.S. and coastal areas of the southeastern U.S.