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RESOURCE

Discharge Measurements at Gaging Stations

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Author(s)
Turnipseed, Phil Sauer, Vernon

Description / Abstract

The techniques and standards for making discharge measurements at streamflow gaging stations are described in this publication. The vertical axis rotating-element current meter, principally the Price current meter, has been traditionally used for most measurements of discharge; however, advancements in acoustic technology have led to important developments in the use of acoustic Doppler current profilers, acoustic Doppler velocimeters, and other emerging technologies for the measurement of discharge. These new instruments, based on acoustic Doppler theory, have the advantage of no moving parts, and in the case of the acoustic Doppler current profiler, quickly and easily provide three-dimensional stream-velocity profile data through much of the vertical water column. For much of the discussion of acoustic Doppler current profiler moving-boat methodology, the reader is referred to U.S. Geological Survey Techniques and Methods 3–A22 (Mueller and Wagner, 2009).

Personal digital assistants (PDAs), electronic field notebooks, and other personal computers provide fast and efficient data-collection methods that are more error-free than traditional hand methods. The use of portable weirs and flumes, floats, volumetric tanks, indirect methods, and tracers in measuring discharge are briefly described.

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