

## Several Methods For Discharge Measurements Of Floods

Papers of the short course on Discharge and Velocity Measurements, Zurich, Aug. 1987 on discharge measurement and calibration, point measures of velocity, measurement of velocity fields, and needed developments.

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).

The reliability of electrical energy networks depends on the quality and availability of their electrical equipment, e.g., power transformers. Local failures inside their insulation can lead to breakdowns resulting in high outage and penalty costs. To prevent these destructive events, power transformers are tested for partial discharge (PD) activity in a routine test before shipment. Furthermore, PD activity can be evaluated as a diagnostic measurement on-site (on-line or off-line) or be constantly monitored during service using the ultra-high frequency (UHF) method. In this thesis, a calibration procedure is proposed for the UHF method used in power transformers, which is lacking so far. The calibration process is required to ensure both reproducibility and comparability of UHF measurements. Only a calibrated UHF measurement procedure can be deemed reliable and eventually be introduced to supplement in (site-)acceptance tests of power transformers. The proposed calibration method considers two factors: The influence of the UHF sensors' sensitivity and that of the UHF instrument characteristics, including accessories like cables, pre-amplifier, etc. The UHF instruments' influence is corrected by using a defined and invariable test signal as a reference for all recording devices comparable to the calibration method used in IEC 60270 for electrical PD measurement. The sensitivity of the UHF sensor is addressed by a characterization of UHF sensors using the antenna factor (AF) measured in a special reproducible setup, i.e., a GTEM cell. In this thesis, a self-built GTEM cell is presented, which is oil-filled to address the environmental conditions inside a transformer where the sensor will be used. With such a cell, influences on the AF of UHF sensors are investigated, and it is shown that sensor sensitivities measured in an air-filled cell can be corrected to the oil environment. A practical evaluation of the proposed calibration procedure is performed in a laboratory setup on a distribution transformer with different UHF instruments and sensors using artificial PD signals and real high voltage driven PD sources. Finally, this thesis identifies future research topics, which may be needed to improve the proposed UHF calibration procedure for power transformers and the UHF method in general.

This manual provides the procedures and data necessary to calculate discharges over and through hydraulic structures. Contents: Introduction; Discharge measurement structures; Discharge relationships and component head losses for hydraulic structures; Headlosses in closed conduit systems flowing full; Analysis of flow conditions and hydraulic design for river diversion in closed conduits; Flow through and over rockfill structures

Chiefly tables.

The earth's cryosphere, which includes snow, glaciers, ice caps, ice sheets, ice shelves, sea ice, river and lake ice, and permafrost, contains about 75% of the earth's fresh water. It exists at almost all latitudes, from the tropics to the poles, and plays a vital role in controlling the global climate system. It also provides direct visible evidence of the effect of climate change, and, therefore, requires proper understanding of its complex dynamics. This encyclopedia mainly focuses on the various aspects of snow, ice and glaciers, but also covers other cryospheric branches, and provides up-to-date information and basic concepts on relevant topics. It includes alphabetically arranged and professionally written, comprehensive and authoritative academic articles by well-known international experts in individual fields. The encyclopedia contains a broad spectrum of topics, ranging from the atmospheric processes responsible for snow formation; transformation of snow to ice and changes in their properties; classification of ice and glaciers and their worldwide distribution; glaciation and ice ages; glacier dynamics; glacier surface and subsurface characteristics; geomorphic processes and landscape formation; hydrology and sedimentary systems; permafrost degradation; hazards caused by cryospheric changes; and trends of glacier retreat on the global scale along with the impact of climate change. This book can serve as a source of reference at the undergraduate and graduate level and help to better understand snow, ice and glaciers. It will also be an indispensable tool containing specialized literature for geologists, geographers, climatologists, hydrologists, and water resources engineers; as well as for those who are engaged in the practice of agricultural and civil engineering, earth sciences, environmental sciences and engineering, ecosystem management, and other relevant subjects. The second edition of Streamflow Measurement meets the demands of engineers and managers in the water industry on how to obtain information on the flow in the world's rivers in view of the decreasing availability of usable water. It deals with all aspects of establishing, operating and maintaining streamflow measurement stations to ensure they provide maximum information. The data are used to plan and design efficient and cost-effective projects and developments. The book covers both traditional methods of data collection and methods involving the use of new and advanced technologies. It provides hydrologists and engineers with a complete reference from which to establish the accurate and reliable collection of information.

"The method of determining the discharge of large streams is that in which the area of cross section is multiplied by the velocity per. sec. of the water passing through the section. The velocity can be measured by the following methods: 1. By floats. 2. Current Meters. 3. Pitots tube. 4. Can be determined by use of Kutter's formula"--Leaf [1].

The specialist contributors to Geomorphological Techniques have thoroughly augmented and updated their original, authoritative coverage with critical evaluations of major recent developments in this field. A new chapter on neotectonics reflects the impact of

developments in tectonic theory, and heavily revised sections deal with advances in remote sensing, image analysis, radiometric dating, geomorphometry, data loggers, radioactive tracers, and the determination of pore water pressure and the rates of denudation.

RiverFlow 2004 is the Second International Conference on Fluvial Hydraulics, organized as speciality conferences under the auspices of the International Association of Hydraulic Engineering and Research (IAHR) within its Fluvial Hydraulics and Eco Hydraulics Sections. RiverFlow conferences are a significant forum of discussion for many researchers

Too little water or too much'? In either case streamflow measurement is crucial. Climate change could significant affect water resources and flood management. Streamflow measurement is necessary for efficient water management. This third edition deals with all the main current methods for measuring the flow in rivers and open channels, in accordanc

Examines measurement variances in estimations of consumptive use of Colorado River water by diverters from Hoover Dam to Mexico.

A one-stop guide to transformer ageing, presenting industrially relevant state-of-the-art diagnostic techniques backed by extensive research data Offers a comprehensive coverage of transformer ageing topics including insulation materials, condition monitoring and diagnostic techniques Features chapters on smart transformer monitoring frameworks, transformer life estimation and biodegradable oil Highlights industrially relevant techniques adopted in electricity utilities, backed by extensive research

The mission of the U.S. Geological Survey (USGS) Water Resources Discipline is to provide the information and understanding needed for wise management of the Nation's water resources. Inherent in this mission is the responsibility of collecting data that accurately describe the physical, chemical, and biological attributes of water systems. These data are used for environmental and resource assessments by the USGS, other government agencies and scientific organizations, and the general public. Reliable and quality-assured data are essential to the credibility and impartiality of the water-resources appraisals carried out by the USGS.

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