



Newsletter – *April 2013*

ASB Systems Pvt. Ltd.

A Dearly Chosen Product – Part1

The last decade has witnessed a sea of change in terms of the growing number of ADCP users in India. People have started to explore the potentials of the device and warmed up to its amazing capabilities. “Going with the Flow” with the rest of the world, the local community has also been successful at tapping the ADCP’s potential in sectors of Marine measurements, Water resources, and subsea Navigation.

Over the next couple of issues, we will discuss with the help of case-studies, how ADCP has been effectively utilized in the above sectors. In this issue we will discuss how ADCPs became popular in the sector of Water resources, viz. Rivers, canals, streams, lakes and reservoirs for River Hydrology, canal irrigation and environment impact studies.

We shall also have a dekho into what makes Teledyne RDI ADCPs stand tall amongst the “Current” breed of Acoustic Doppler profilers, using its Broadband technology and Four beam solution.

In this issue...



ADCP – A product of choice

Water resources before ADCPs Arrived

ADCP technique and Applications

Tech Tips

Factors which determine ADCP performance

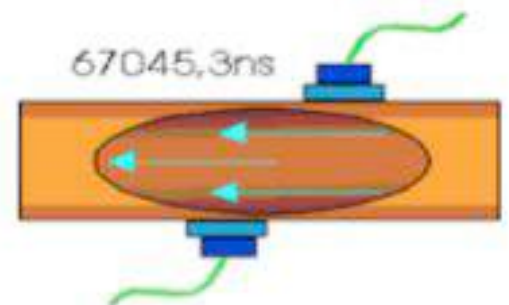
Customer satisfaction is our prime objective

ADCPs in Water Resources

There is a growing need for improved use, control, and availability of inland waters. And meeting this need requires better instrumentation for accurately measuring currents in rivers & lakes, and streams & channels. These instruments must operate reliably and survive in difficult conditions for extended periods. For such conditions, the Acoustic Doppler Current Profiler (ADCP) has proven operational and with performance advantages. This versatile tool is a single device that can deliver a wide scope of measurements for monitoring water resources.

Rivers of all sizes need constant monitoring to provide data on flow rates and depth. Of particular interest is measuring the river discharge, or the net volume of water transported down-stream. This is necessary for safe navigation, planning dredging programs, flood defense design, support of civil engineering works and monitoring abstraction rates.

For many years, the methods for directly measuring river discharge changed little. Methods using mechanical devices ranged from hanging the relevant sensors from a bridge to setting up cross-river cableways, from which equipment was deployed to make spot measurements.



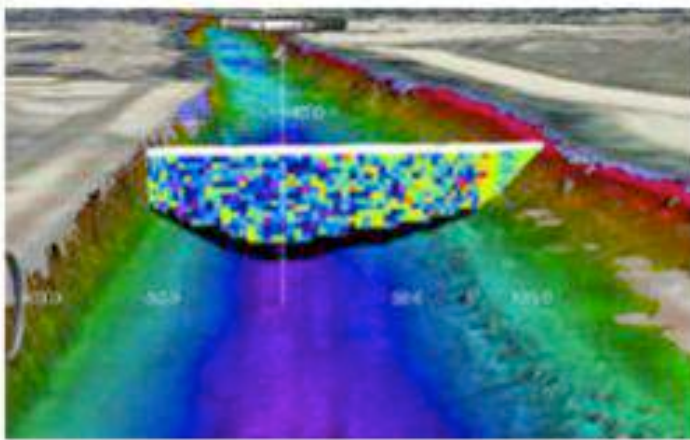
Acoustic devices measured time-of-flight differences along reciprocal paths between two or more receivers. These methods have inherent limitations such as inflexibility, unavoidable under-sampling of flow and delayed data processing. ADCPs overcame these problems.

In 1991, Broadband ADCPs enabled a method for gauging the volume of water carried by rivers, providing a safer way to measure flooding rivers.

ADCPs have successfully replaced the obsolete single point current meter technology which was traditionally being used in water resources. With their sophisticated technology, yet simple-to-use interface, ADCPs are a popular choice with Engineers and scientists alike.

By analyzing these sound echoes, the ADCP makes four different measurements at once.

1. Speed and direction of water currents are determined at many levels through the water depth--a "current profile".
2. The ADCP's speed-over-ground and path of travel are revealed by echoes scattered by the bed.
3. The ADCP also measures water depth, like an echo sounder.
4. Finally, a map of the spatial distribution of sediments carried by the water (e.g, a sediment plume) comes from the echoes.



Applications in Water resources include **River Hydrology, Irrigation monitoring, Storm channel monitoring, Environmental impact studies, Fisheries study, Flood warning, Safe navigation, Bridge scour and Circulation studies.**

In the next issue of our Newsletter, we will discuss the range of models from TRDI designed for this application.

Tech Tips:

Understanding ADCP performance - Review of choices and consequences for setting up the ADCP:

An ADCP's performance depends upon a range of internal and external factors. Result oriented choices determine the optimum range/resolution for any ADCP. It is not only the ADCP's settings, but also its installation and some other external factors which will determine the quality of throughput and efficiency.

Below is a summary of the determining factors

