



# Capacitação para a Rede Hidrometeorológica Nacional: Introdução à Hidrometria

## Streamgaging 101

### Monday, May 14

8:00am-9:00am	<b>Introductions</b> Instructors, Attendees, Class Expectations
9:00am-10:00am	<b>USGS Streamgaging Basics</b> -This presentation will concentrate on stage/discharge relationships with a large focus on controls and how they affect that relationship.
10:00am-10:30am	Break
10:30am-11:30am	<b>Changing controls</b> -Discussion of changing control conditions over time to emphasize scour and fill.
11:30am-1:00pm	Lunch
1:00pm-2:00pm	<b>Gaging station site selection</b> -Site selection for a new gaging station. Particular emphasis on the importance of controls and locating gaging stations at bridges.
2:00pm-3:15pm	<b>Measuring stage</b> -Types of non-recording gages, sensors, dataloggers. This discussion will include explaining the differences in reference gages and sensors.
3:15pm-3:30pm	Break
3:30pm-4:45pm	<b>Measuring discharge</b> -Presentation will discuss the different methods of collecting discharge data with an emphasis on controls.
4:45pm-5:45pm	<b>Streamgaging Safety</b> – Importance of safety in the field and how to approach field work in a safe manner.
5:45pm-6:00pm	<b>Questions and discussion</b> -This period will be led by the instructors and will be based on observations obtained by the instructors during the day's discussions.

### Tuesday, May 15

8:00am-8:30am	Review of Monday topics
8:30am-10:00am	<b>Datum and Levels</b> -Presentation will concentrate on the importance of verifying the base





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gage and the theory behind proper gaging station levels.

10:00am-10:15am	Break-Set up at least one gun and place rods during break. Leave these up through end of day on Wednesday. Attendees can practice leveling and focusing the guns and reading rods during breaks and lunch.
10:15am-11:30am	Datums and Levels-presentation continued.
11:30am-1:00pm	Lunch
1:00pm-4:30pm	Field Exercise: USGS and Brazilian Leveling Procedures (including peg test exercise) – near the classroom at the ANA's Headquarter.
4:30pm-4:45pm	Break
4:45pm-5:00pm	<b>Field day prep</b> -Divide into groups, review expectations and safety procedures.

## Wednesday, May 16

8:00am-8:15am	Load for trip to field site.
8:15am-8:30am	Travel to first field site
8:30am-12:30am	<u>Field Exercise</u> -Wading discharge measurements and proper measurement section location selection.
12:30am-2:00pm	Travel back to ANA Headquarters/Lunch
2:00pm-3:30pm	<b>Field data entry/processing discharge measurements</b> -Presentation will stress importance of documenting field issues and providing a mechanism for recording the issues. This will also include a discussion of the proper rating of discharge measurements.
3:30pm-3:45pm	Break
3:45pm-5:00pm	<b>Processing Gage-height and Discharge records</b> -Brief overview of the processes that USGS uses to process their records quickly and efficiently.





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## Thursday, May 17

7:45am-8:00am	Load for trip to field site.
8:00am-9:30am	Travel to field site.
9:30am-9:45am	Prepare at field site, including talk about field safety.
9:45am-12:00am	Discharge measurements and <u>Field Leveling</u> – the instructors will teach the students to choose the proper discharge measurement location, talk about the different types of discharge measurement devices and techniques. In addition, if the groups wish, they can level in staff gages of the station.
12:00am-1:00pm	Lunch
1:00pm-4:30pm	Continue Discharge measurements and <u>Field Leveling</u> .
4:30pm-6:00pm	Travel back to Brasilia.

## Friday, May 18

8:00am-8:30am	Review of previous day's discussion.
8:30am-10:00am	<b>USGS QA/QC Techniques</b> -USGS practices for gage to page and discussion of the techniques the USGS uses to quality assure data.
10:00am-10:15am	Break
10:15am-11:30am	<b>Wrap-up</b> -Instructors will query the students to determine changes in the class going forward. Also presentation of certificates.