

Western Snow Conference Technical Tour Thursday, April 19, 2018

Visit the first USGS streamgage: Embudo, NM

A site on the Rio Grande near the town of Embudo, New Mexico, was established as the first USGS training camp for hydrographers. Frederick H. Newell, first appointed by John Wesley Powell as assistant hydraulic engineer and later serving as first director of the Bureau of Reclamation, was in charge of the camp. Embudo, the Spanish word for “funnel,” describes the convergence of the San Juan Mountains and Culebra Range foothills that created a defined channel cross section for experimentation and refining of streamgaging equipment and techniques. After acquiring some experience, the newly trained hydrographers dispersed to locations throughout the west leaving a legacy of gaging sites, streamgages, and streamflow measurements. Adapting and improving equipment and techniques for use in the West were important activities at Camp Embudo. Improved methodologies were developed for the measurement of stream velocity, suspended sediment, and bedload, and for making weather observations.

Our tour participants will be split into three groups where we will learn about USGS gaging techniques and streamflow forecasting. The groups will then rotate through three ‘streamside’ sessions. The day will be initiated with a brief talk from John Bumgarner, the director of the USGS New Mexico Water Science Center, who will explain the history of the USGS gaging network.

Streamside sessions:

1. Stream gaging techniques:
Current and past stream gaging techniques led by Fletcher Brinkerhoff (USGS – NM WSC). This will be a hands on experience where we can learn, watch and try various techniques.
2. Sediment gaging techniques:
Current and past sediment gaging techniques led by Jeb Brown (USGS – NM WSC). As with the stream gaging session, this will hands-on experience where we can learn, watch and try various techniques.
3. Streamside talk about a water managers perspectives on the complexities of the Rio Grande Watershed and the history / need for runoff forecasts for downstream water users. They will focus on how stream forecasts are developed from snow information and how the forecasts are used to make operational decisions. The streamside chats will be led by Dagmar Llewelly (BOR), Carolyn Donnelly (BOR), Andy Wood (UCAR), and Flaivo Lehner (UCAR)

A picnic lunch from a local New Mexican taqueria will be provided (El Parasol, Espanola, NM) where attendees will have 3 choices of tacos: vegetarian, beef, of chicken.

Immediately following the activities, we will stop at a local winery (Vivac: <http://vivacwinery.com/>) for wine tasting and snacks.

More about the Embudo gage: <https://pubs.usgs.gov/fs/2014/3034/pdf/fs2014-3034.pdf>

Tentative Schedule:
Thursday, April 19, 2018

- 08:00 – 10:00 Depart from hotel and travel to Embudo streamgage
- 10:10 – 10:30 John Bumgarner (Director – USGS NM Water Science Center) – history / significance of the gage and about the USGS network
- 10:30 – 12:00 Streamside sessions where participants will break into three groups
- 12:00 – 12:45 Picnic Lunch
- 12:45 – 14:15 Streamside sessions continued
- 14:15 – 14:30 Depart for Vivac winery for wine tasting
- 14:30 – 16:30 Wine tasting and snacks
- 16:30 – 18:15 Depart for hotel