

The objective of a precipitation (rain / snow) survey is to establish the chemical and isotopic signature of rainfall in Faryab, which will, in turn, shed light on the recharge mechanisms for groundwater and the mechanisms of soil salinization.

There are two possible methods for obtaining samples of rainfall or snowfall. Whichever method is selected should be initiated by late autumn 2012, in order to collect samples during winter and spring 2012-13.

**Method 1:**

Liaise with Ministry of Water, MAIL and Meteorological Institute to ascertain if they can obtain samples of precipitation from existing meteorological stations. As far as we know these stations are:

Station	Longitude	Latitude	Altitude (m asl)
Maimana	64.772	35.931	860
Gurziwan	64.358	37.178	1380
Andkhoy	65.124	36.959	295

Possible points of contact may be :

- Mohammad Fareed Oriya, Deputy Project Manager of the Agromet Project at Ministry Of Agriculture (MAIL).
- Dr Shobair at Ministry of Water
- Mr Fahim Zaheer at USGS

The main points are that we require

- several 10s of mL (ideally 100 mL) of rainfall or snowmelt from each of the stations,
- ideally a sample from at least 2 (and preferably 3) episodes in different seasons.

The people collecting the samples must be aware that natural chemical concentrations in rain and snow are very low and the samples are thus easily contaminated. The key points are:

- Rain samples should be collected using clean plastic funnels into new polythene sample containers (if necessary, we can provide 500 mL or 100 mL flasks).
- Newly fallen snow can be collected (using a clean plastic trowel or spoon if necessary) into several 500 ml polythene sampling flasks and allowed to melt.
- Contact with human hands or any foreign object should be avoided.
- Samples should ideally not contain any wind-blown dust or debris (flies, leaves etc.).
- After the rainfall or snowfall episode the collected sample should be transferred to a new, clean 100 ml HDPE sample bottle and sealed.
- Ideally the 100 mL flask should be filled, if possible. If there is sufficient water, fill as many 100 mL flasks as possible.

**Method 2:**

DACAAR would set up the three precipitation collection points: ideally one in the mountains south of Maimana, one in Maimana and one in the north of the Province (Andkhoy?). The stations will only be set out during a rainfall/ snowfall event, as detailed above. DACAAR would then be responsible for sampling the rainfall or snow, as detailed above.

Thus, as a result of this survey, we would end up with 6-9 sets of samples:

- 2-3 sets of samples from each of three stations


The samples should be sealed tightly, kept in a cool, dark place (around 4°C, but not allowed to freeze).

The samples should be transported to DACAAR in Kabul as soon as possible, ideally in a coolbox or similar.

The samples would then be sent to Norway for

- Analysis of chemical components at very low detection levels (using ICP-MS and similar methods)
- Analysis of hydrogen and oxygen isotopes

**LOCATION RECORDING SHEET FOR PRECIPITATION SURVEY SAMPLES**

<b>NORPLAN</b> 	<b>PRECIPITATION SAMPLE 2013 FARYAB PROVINCE</b>	
Precipitation station name:		
District:	Village:	Location name (if any):
Latitude/longitude (decimal):		
Approx. elevation (m asl)		
Date of sample		
Description of sample and sample event	e.g. rainwater sample during 3 hour rainfall event <b>or</b> snowfall sample of snow pack after 26 hours of snow	
Type of land use and terrain		
Sample number		
Number of flasks filled	e.g. 2 x 100 mL flasks	
Recorded by:	Date:	Time:
Name:		