



4th BEIRUT WATER WEEK  
20-22 February 2013  
Notre Dame University-Louaize

## Use of stable isotope analyses as a support for the delineation of groundwater catchments (Jeita groundwater catchment)

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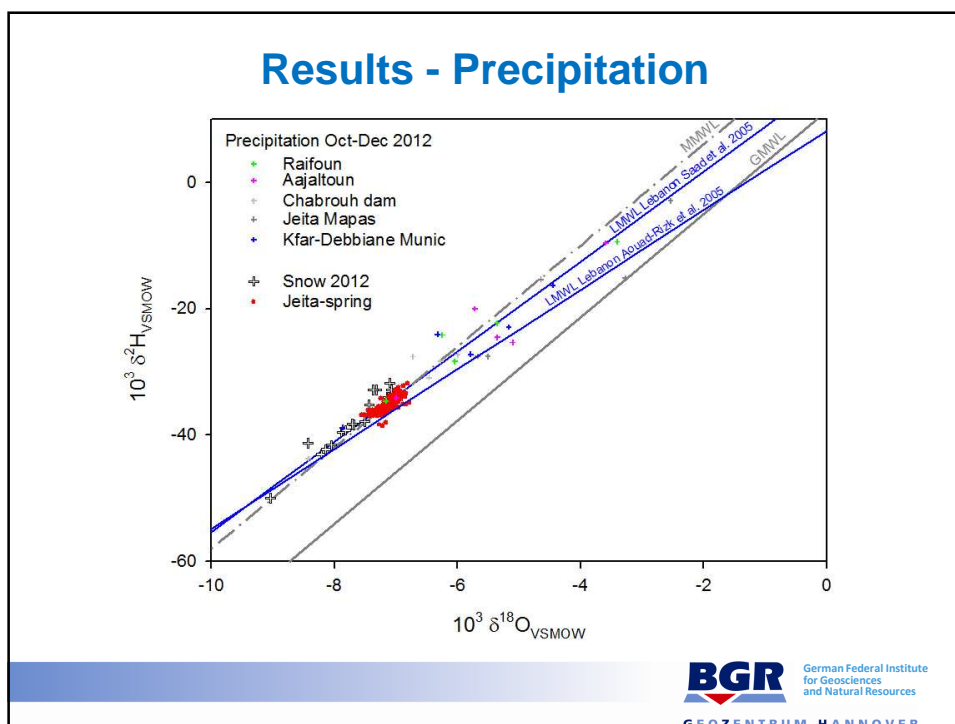
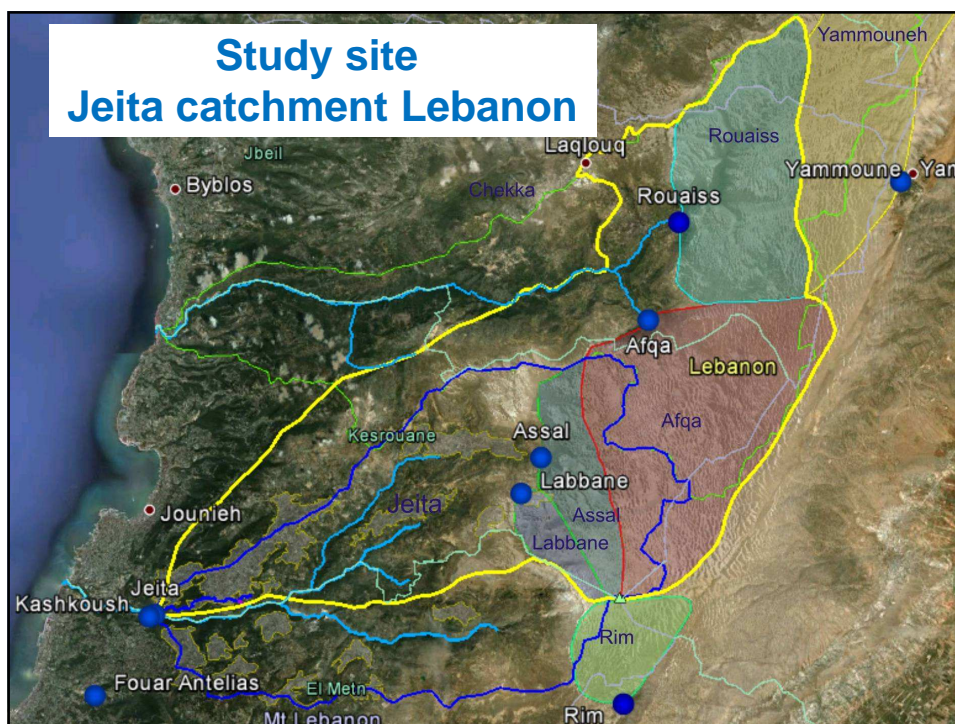
**Protection of Jeita Spring**

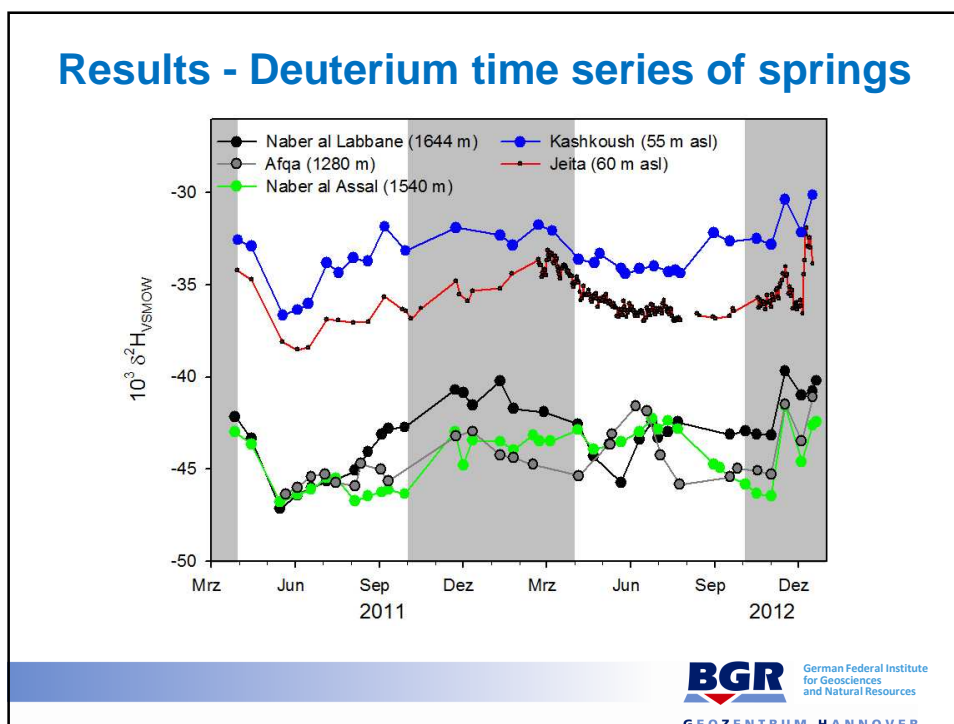
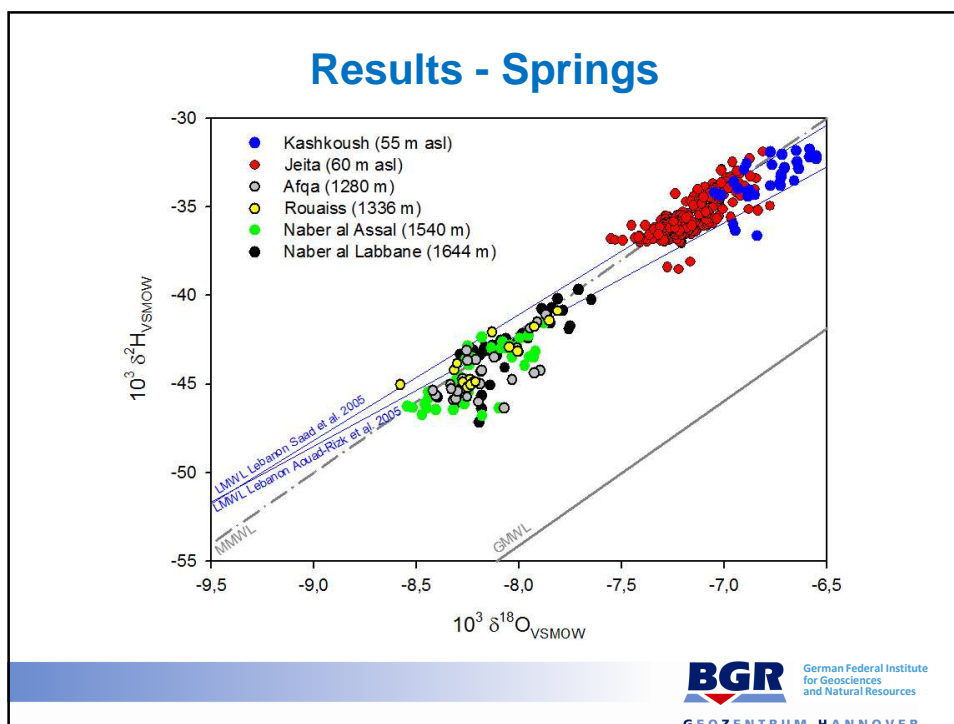
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## Outline

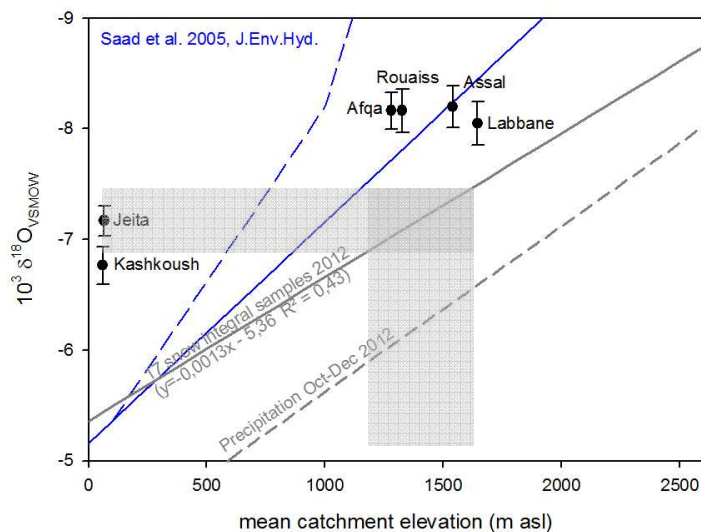
- Use of stable isotopes ( $^2\text{H}$  and  $^{18}\text{O}$ )  
for investigation of groundwater catchments of spring
- Elevation effect of stable isotopes in precipitation
- Snow contribution to precipitation in catchments
- Spring response to input signals (elevation / seasonality)

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## Results - Altitude effect / catchment altitude



## Conclusions

- Stable isotopes show seasonal variations: indicate fast flow
- Clear isotopic difference of springs: indicate elevation signal
- Previous local meteoric water lines could not be confirmed and snow melt contribution is important
- Mean catchment elevation for Jeita is higher than 1300 m asl
- Groundwater residence times between 1 and 5 years

