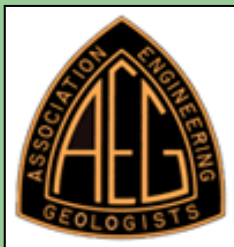


# HAGS/AEG – Meeting Announcement

Thursday, February 8, 2018 6:30 p.m.



## Use of Satellite-Derived Precipitation Data in the Identification of Spring Recharge Areas and its Relationship to Boiling Springs, Cumberland County, PA

Presented by: Tim Bechtel, PhD, P.G. – Enviroscan, Inc. and F&M College

### Meeting Location:

AEG Offices  
441 Friendship Road  
Harrisburg, PA  
(not far from Bass Pro Shops)

Dinner at 4:45 – 6:15  
Fiesta Mexico  
3957 Paxton Street  
(between Ruby Tuesday  
and Nissan dealership)

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**Abstract:** Research conducted by Dr. Timothy Bechtel; Associate Professor of Geoscience, Robert Walter; F&M student researcher, Jake Longenecker; and others, resulted in a paper published in “Geophysical Research Letters” in May 2017 (<http://onlinelibrary.wiley.com/doi/10.1002/2017GL073790/epdf>) which outlines a method to determine the recharge area for springs using NASA satellite-derived precipitation data which uses microwaves to measure global precipitation over 100 square kilometer parcels every half hour. The utility of this method can be applied worldwide to identify spring recharge areas and their hydrodynamics and assist in watershed protection.

Of specific interest in the research was the study of Boiling Spring (locally known as “the Bubble”) in Cumberland County, PA, where a correlation was seen between rainfall along the Pennsylvania-Maryland border - nearly 50 miles away from the karst spring – and a rise in the water level at the spring (i.e., a discharge surge).

**Speaker Bio:** Dr. Timothy Bechtel is a graduate of Haverford College (B.Sc., Geology) and Brown University (M.Sc. Engineering Geology and Ph.D. Geophysics). He is a founding principal (with his wife, Felicia) of Enviroscan, Inc., a geophysical contracting firm located in Lancaster, PA. He is an adjunct assistant professor of geoscience at Franklin & Marshall College in Lancaster, PA where he has taught geophysics, karst hydrogeology, engineering geology, petroleum geology and other topics. Dr. Bechtel is the recipient of numerous awards and grants, and has a long list of publications. Other research interests include landmine and unexploded ordinance detection and discrimination, archeological geophysics, non-destructive testing of artworks and historic architecture and land instability, such as subsidences, landslides and rock falls.



Photo above left from: <http://visitpadutchcountry.com/photos-boiling-springs-pa/boiling-springs-pa002/>  
Photo above right from: <https://visitcumberlandvalley.com/listing/childrens-lake/1262>

**RSVP for dinner & meeting by no later than noon Tuesday, February 6, 2018.**

RSVP Amy Randolph at [secretaryhags@gmail.com](mailto:secretaryhags@gmail.com) or 717.395.3181.

HAGS Facebook <https://www.facebook.com/pages/Harrisburg-Area-Geological-Society/271671046059>