# CZO Metadata Worksheet

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| Data File Name | SSHO\_GroundWater\_Chemistry |
| Date Prepared | 1/11/13 |
| Descriptive Title | Groundwater Chemistry |
| Update Frequency | Yearly |
| Abstract | Groundwater chemistry from two unscreened wells (ISCO\_GW1 and ISCO\_GW2) at Susquehanna Shale Hills Critical Zone Observatory from 2008-2010. Well are approximately 2.74 m deep and were sampled daily using automatic samplers (2700 series, Teledyne Isco, Lincoln, NE). |
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| Data Value Descriptions | * COL1: label = Sample\_Date * COL2: label = Sample Number * COL3: label = Site Name * COL5: label = DOC (ppm) * COL6: label = Cl- (μM) * COL7: label = NO3- (μM) * COL8: label = SO42- (μM) * COL9: label = F (μM) * COL10: label = Al+3 (μM) * COL11: label = Ca+2 (μM) * COL12: label = K+ (μM) * COL13: label = Mg+2 (μM) * COL14: label = Na+ (μM) * COL15: label = Si (μM) * COL16: label = Sr (μM) * COL17: label = Fe+3 (μM) * COL18: label = Mn+2 (μM) * COL19: label = P (μM) * COL20: label = Ba (μM) * COL21: label = 2H (‰) * COL22: label =  18O (‰) |
| Keywords | Soil Water Chemistry, Anions, Cations, Dissolved Organic Carbon, Oxygen and Hydrogen Stables Isotopes |
| Methods | Four groundwater samples were collected at each well per sampling event. Three samples were filtered (0.45 m Nylon syringe filters) and analyzed for major anions, cations and DOC, while the last samples was unfiltered and analyzed for oxygen and hydrogen stable isotopes. Cations and DOC samples were acidified in the laboratory with nitric and hydrochloric acids, respectively. DOC and stable isotopes samples were collected were collected in glass bottle and while major ion samples were collected in screw top Nalgene bottles.  Major cations and silica were analyzed on an inductively coupled plasma–optical emission spectrometer (ICP– OES), while major anions were measured on the Dionex Ion Chromatograph (Sunnyvale, CA). Dissolved organic carbon was analyzed using a Shimadzu TOC-5000A analyzer (Shimadzu Scientific Instruments, Columbia, MD). Oxygen and hydrogen stable isotopes were analyzed ion the DLT-100 liquid water stable analyzer (Los Gatos Research, Mountain View, CA). |
| Citation | The following acknowledgment should accompany any publication or citation of these data: Logistical support and/or data were provided by the NSF-supported Shale Hills Susquehanna Critical Zone Observatory. |
| Publications | Jin, L., Andrews, D.M., Holmes, G.H., Lin, H., and Brantley, S.L. Opening the "Black Box": Water Chemistry Reveals Hydrological Controls on Weathering in the Susquehanna Shale Hills Critical Zone Observatory. Vadose Zone Journal 10:928-942, doi:10.2136/vzj2010.0133.  Andrews, D.M., H. Lin, Q. Zhu, L. Jin, S.L. Brantley. Hot Spots and Hot Moments of Dissolved Organic Carbon Export and Soil Organic Carbon Storage in the Shale Hills Critical Zone Observatory. Vadose Zone Journal 10:943-954, doi:10.2136/vzj2010.0149 |
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