

UVA Collab Site: SWAS-VTSSS AGENCY ACCESS

Contents Description

- Data associated with SWAS-VTSSS primary data collection sites, including sites in George Washington and Jefferson National Forests, Shenandoah National Park, and Virginia Wildlife Management Areas, and on other public and private lands.
- Data associated with TIME project data collection sites, including sites in Virginia, West Virginia, and Maryland.
- File names include the date of the most-recent update in YYYYMMDD format.

(1) CHEMISTRY DATA

Data are provided in Access and Excel formats. Note the posted chemistry data have been adjusted to account for effects of methods and instrument changes. See C. DATA ADJUSTMENT below.

A. ACCESS TABLES

SWAS_VTSSS_TIME_PRIMARY_YYYYMMDD.accdb - Access database with sample analyses and related data tables.

DATA_MODEL_YYYYMMDD.jpg - Diagram of table relationships for SWAS_VTSSS_TIME_PRIMARY_YYYYMMDD.accdb; shows table alignment but not table linkage (referential integrity is not enforced).

Tables included in **SWAS_VTSSS_TIME_PRIMARY_YYYYMMDD.accdb**:

SAMPLE_MEASUREMENTS_YYYYMMDD - Sample analysis results in row-major format, with separate row for each analysis result.

Data table creation, rules and notes

- includes records for samples with complete analysis, defined as including pH, ANC, SO₄, NO₃, Cl, Ca, Mg, K, Na
- includes additional analysis, if available, for samples with complete analysis
- values below method detection limits (MDLs) have not been censored (applies to some NO₃, NH₄, DOC, TMAL, and OMAL values)
- the Sample field is unique for each sample
- Synoptic, Quarterly, Weekly, Episodic and TIME_Site fields indicate association of sample records with specific data sets
- sample records may be associated with multiple data sets

SAMPLE_COLLECTOR_OBSERVATIONS_YYYYMMDD - Qualitative observations associated with sample collection, including weather, stream flow level, and stream turbidity.

SWAS_VTSSS_TIME_PRIMARY_SITE_DOCUMENTATION_YYYYMMDD - Site documentation data for primary SWAS-VTSSS sites, including current and historic synoptic survey, quarterly, weekly, and episodic sample sites, including date ranges for sample collection associated with specific data sets, stream and watershed disturbance notes, and site or map discrepancy notes.

LOCAL_CHARACTERISTICS_YYYYMMDD - Associates sample records with specific suites of sample collection, handling, preparation, and analysis methods.

METHODS_SAMPLE_COLLECTION_YYYYMMDD - Field method: grab sample or automated sample collection.

METHODS_SAMPLE_HANDLING_YYYYMMDD - Sample container, storage, and transport.

METHODS_SAMPLE_PREPARATION_YYYYMMDD - Sample treatment and preservation.

METHODS_SAMPLE_ANALYSIS_YYYYMMDD - Sample analysis technique, equipment, citations.

METHODS_MDL_YYYYMMDD - Methods for determination of method detection limits and citations.

B. EXCEL SPREADSHEETS

SWAS_VTSSS_TIME_PRIMARY_YYYYMMDD.xlsx - Spreadsheet with sample analyses in column-major format: analysis results are included in single rows for each sample. Explanatory text (derivation, rules for data set creation, notes) are provided at the top of the spreadsheet.

C. DATA QUALITY REPORTS

Prior to 2009, before SWAS-VTSSS-TIME data were posted on UVA Collab, data quality reports were combined with data reports. ZIP files are provided for reports that include multiple files.

D. METHODS AND INSTRUMENT CHANGES

Anion and Cation Reporting: Prior to 10/01/2005, processing software always reported a numerical result. After 10/01/2005, new processing software did not provide a numerical result when no analytical response was detected; a zero is reported in this case.

Numerical Adjustments: The posted chemistry data (sample results and associated MDLs) are adjusted to account for the effects of instrument and method changes in 2005, 2006 and 2014. Instrument and methods changes were made: (1) on 10/01/05 for base cations and acid anions; (2) on 10/01/2006 for ANC and pH (3) on 01/01/2013 for Total and Organic monomeric Al and (4) on 01/01/2014 for Silica. Previously posted chemistry data were not adjusted.

The significance of the changes and the applied adjustment factors are shown in the following table.

Analyte	n	Mean		r ²	p-value of t-test	Correction Factors	
		Old Method	New Method			m	b
		(x)	(y)			Linear (y=mx+b)	
ANC (µeq L ⁻¹)	96	53.75	61.19	1.00	< 0.01	1.01	6.63
pH	96	6.32	6.23	0.99	< 0.01	0.96	0.16
SO ₄ ²⁻ (µeq L ⁻¹)	9	62.75	61.83	1.00	0.01	1.03	-2.50
Ca ²⁺ (µeq L ⁻¹)	9	160.40	167.80	1.00	0.06	-	-
Mg ²⁺ (µeq L ⁻¹)	9	74.65	75.93	1.00	0.06	-	-
K ⁺ (µeq L ⁻¹)	9	13.21	12.64	1.00	< 0.01	1.03	-0.90
Na ⁺ (µeq L ⁻¹)	9	38.87	38.54	1.00	< 0.01	1.00	-0.40
Cl ⁻ (µeq L ⁻¹)	9	19.23	18.87	1.00	< 0.01	1.02	-0.67
NO ₃ ⁻ (µeq L ⁻¹)	9	7.52	7.88	1.00	0.02	0.96	0.65
NH ₄ ⁺ (µeq L ⁻¹)	9	6.54	6.55	1.00	0.86	-	-
SiO ₂ (µmol L ⁻¹)	711	119.04	119.44	1.00	<0.01	1.00	0.40
Power Law (y=mx ^b)							
TMAI ^{1,2} (µg L ⁻¹)	115	59.46	43.23	0.97	< 0.01	0.43	1.11
TMAI ^{1,3} (µg L ⁻¹)	151	37.31	18.87	0.93	< 0.01	0.63	0.94
OMAI ^{1,2} (µg L ⁻¹)	43	55.87	31.12	0.95	< 0.01	0.63	0.96
OMAI ^{1,3} (µg L ⁻¹)	13	53.54	22.93	0.93	< 0.01	0.59	0.92

¹ Unique corrections were applied to two separate groups of Al data (spatially variable and hydrologically variable) due to significant differences in the relationship between data analyzed with the new and old methods.

² Grab samples taken at all sites, with the exception of PAIN

³ Grab and automated samples over a range of discharge conditions at PAIN

(2) DISCHARGE DATA

SWAS_Discharge_YYYYMMDD.zip - Tables with daily and hourly discharge estimates (CFS) for streams in Shenandoah National Park, including White Oak Run, North Fork of Dry Run, Paine Run, Staunton River, and Piney River.

(3) SITE DOCUMENTATION

A. EXCEL SPREADSHEETS

SWAS_VTSSS_TIME_PRIMARY_SITE_DOCUMENTATION_YYYYMMDD.xlsx - Site documentation data for primary SWAS-VTSSS sites, including current and historic synoptic survey, quarterly, weekly and episodic sample sites, including date ranges for sample collection, stream and watershed disturbance notes, and site or map discrepancy notes. Explanatory text is provided at the top of the spreadsheet. This an Excel version of the SWAS_VTSSS_TIME_PRIMARY_SITE_DOCUMENTATION_YYYYMMDD table included in the Access database, SWAS_VTSSS_TIME_PRIMARY_YYYYMMDD.accdb.

SHEN_PRIMARY_SITE_DOCUMENTATION_YYYYMMDD.xlsx – Same as **SWAS_VTSSS_TIME_PRIMARY_SITE_DOCUMENTATION_YYYYMMDD.xlsx** but only for sites within Shenandoah National Park.

B. PDF FILES

Station reports in PDF formats, including site descriptions, coordinates, elevation, access descriptions, photographs, and maps.

(a) SWAS-VTSSS_PRIMARY_SITES

Station reports for SWAS-VTSSS primary sites in western Virginia provided individual files.

(b) TIME SITES

Station reports for TIME project sites in Virginia, West Virginia, and Maryland provided as a single zip file.