SEDIMENT BUDGET ANALYSIS SYSTEM: SBAS BASICS BBAS.pyt 3 00 - Set Up SBAS Environment 3 01a - Create SBAS Alternative 3 01b - Load SBAS Alternative

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May 2017



U.S.ARMY

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



87.501 30.547 Decimal Degrees

SEDIMENT BUDGET ANALYSIS SYSTEM (SBAS)

- SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides a framework for formulating, documenting, and calculating sediment budgets, including estimation of uncertainty.
- Once installed, this "toolbox" (available in ArcMap) allows users to define a conceptual budget visually by creating a series of cells and arrows that represent sources, sinks, and flux rates. It then calculates quantitative "micro" (local) and "macro" (regional) sediment budgets, using a pre-defined sed<u>iment-budget equation.</u>







SBAS & DATA INTEGRATION FRAMEWORK

- User interfaces, built for a desktop mapping environment, assist engineers in graphically modeling sediment budgets. When complete, budgets are synchronized with a master online inventory.
- Master online inventory holds a spatial footprint of the budget; therefore mapping application can easily locate available sediment budgets.





SBAS TOOL DOWNLOAD

- SBAS Tools are designed as tools for use within ArcMap 10.x, ArcToolbox.
- To download, go to http://navigation.usace.army.mil > Resource Discovery > and search for SBAS
 Sediment Budget Analysis System (SBAS) for ArcMan

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| ABOUT EXI NAV | LORE RESOURCE | Overview Usage Settings | |
| Navigation US Army Corps of Engineers | | Edit Thumbhail | Download |
| | | SBAS (Sediment Budget Analysis System) for Arcols Desktop provides a Pedit framework for formulating, documenting, and calculating sediment budgets, including | Update |
| | Resource Discovery | estimation of uncertainty. This ArcMap Toolbox assists with the building of Sediment Budgets. | Share |
| | Click help for additional details. | Desktop Application Template by usace_sam_rd3 | Metadata |
| | Keywords sbas | ★ Add to Favorites Created: Jan 24, 2018 Updated: Jan 25, 2018 View Count: 10 | metadata |
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| | ٩ | SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides a framework for formulating, documenting, and calculating sediment budgets, including estimation of uncertainty. This Windows application (ESRI ArcMap Toolbox) allows users to define a conceptual budget visually by creating a series of cells and arrows that represent sources, sinks, and flux rates. It then calculates quantitative "micro" (local) and "macro" (regional) sediment budgets, using a pre-defined sediment- budget equation. | Low High L Top Improvement: Add a longer description |
| | 5 Results - Displaying Result 1 to 5 | | Details |
| | Conceptual Sediment Budget - North Atlantic Coast Cor Web service that provides a conceptual regional sediment budget (CRSB) for the USA (CENAD). This CRSB visualizes the magnitude and direction of sediment transport fror dredging data from Dredging Information System (DIS), placement data (when avai | Terms of Use Edit M Add any special restrictions, disclaimers, terms and conditions, or limitations on using the item's content. ACE NOTITI AUAINIC DIVISION m Maine to Virginia; includes | Size: 83 MB Shared with: Everyone (public) ★★★★ |
| | Sediment Budget Analysis System (SBAS) Desktop Too SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides a framework f and calculating sediment budgets, including estimation of uncertainty. This Windows a define a conceptual budget visually by creating a series of cells and arrows th | DIS for formulating, documentin application allows users to | |
| | Sediment Budget Analysis System (SBAS)- North Atlant | tic Coast Comp US Army Corps of Engineers. | U.S.ARMY) |

OTHER WAYS TO DOWNLOAD

- 1. Go to http://www.arcgis.com.
- 2. Search for "SBAS". Searching this site will retrieve USACE and non-USACE resources.
- 3. Click "Sediment Budget Analysis System (SBAS) for ArcMap"

| 4. Dowr | nload Zip | Sediment Budget Analysis System (SBAS) for ArcMap 🖌 Edit | |
|--|--|--|--|
| ArcGIS x | · | Overview Usage Settings | |
| ← → C △ ③ www.arcgis.com/home/search Apps School ⑧ Bowhead ◎ DMZ and OPJ | uhtmi?q=SBAS&start=1&sortOrder=desc&sortField=relevance My Active Projects 👖 OPJ Projects (Not Mir 👖 OPJ Management To: 🧻 Portals and Platforms 📋 ESRI Help 📑 Oracle 📑 Rose 🇋 Online GUID Gene | Edit Thumbnail SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides a Edit | Download |
| ArcGIS Features Plans Gallery Map Scene. Help | | framework for formulating, documenting, and calculating sediment budgets, including estimation of uncertainty. This ArcMap Toolbox assists with the building of Sediment | Update |
| Search | | Budgets. | Share |
| Q SBAS Content Groups | Search | Add to Favorites Created: Jan 24, 2018 Updated: Jan 25, 2018 View Count: 10 | Metadata |
| ↓ Item Type | 1 - 16 of 24 | Description 🖉 Edit | Item Information 🛛 🛛 Learn more |
| Maps Layers Scenes Apps Tools Files | SBAS SBAS SBAS Created; Mar 16, 2016 Updated; Mar 16, 2016 View Count: 647 | SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides a framework for formulating, documenting, and calculating sediment budgets, including estimation of uncertainty. This Windows application (ESRI ArcMap Toolbox) allows users to define a conceptual budget visually by creating a series of cells and arrows that represent sources, sinks, and flux rates. It then calculates quantitative "micro" (local) and "macro" (regional) sediment budgets, using a pre-defined sediment-budget equation | Low High Log Improvement: Add a longer description |
| > Date Modified | Sediment Budget Analysis System (SBAS) for ArcMap | Terms of Use Fdit | Size: 83 MB Shared with: Everyone (public) |
| | SBAS (Sediment Budget Analysis System) for ArcGIS Desktop provides and calculating sediment budgets, including ostimation of uncertainty. To of Sediment Budgets. Crosted: Jan 24, 2018 Updated: Jan 25, 2018 View Count: 3 | A toolbox assists with the building | |
| | | 3 ···· US Army Co of Engineer | s U.S.ARMY |

OTHER WAYS TO DOWNLOAD

- 1. Go to the RSM Website: http://rsm.usace.army.mil/
- 2. Browse to Tools & Databases > SBAS Arc10 > SBAS Arc 10 Toolbox (zip)







INCLUDED THE SBAS DOWNLOAD (ZIP FILE)

Local File Geodatabase

- Holds country polygons and NOAA shorelines for use as basemaps
- Holds any local SBAS datasets you create during **SBAS** sessions

SBAS Toolbox (written in Python)

- Scripts are to be run sequentially
- If red 'X's appear, be sure to run the tools above

Connection to the Master Dataset & Source Code

- SDE connection to master database
- Python source code

User s Guide

- User Guide support ArcGIS 10.1 through 10.5
- Contains steps for installations and usage of the tools

🖃 🔟 SBAS_Data.gdb

BasemapCounties

BasemapShoreline

Metadata

- SedimentMacroFlux
- SedimentMacroLittoral
- SedimentMacroTransportDirection
- SedimentManagementCell
- SedimentManagementCellScenario
- SedimentManagementFluxScenario
- SedimentManagementMacroCell
- SedimentManagementMacroLittoral
- SedimentManagementScenario
- SedimentTransportDirection

File Name

🖃 🌍 SBAS.pvt

- 💐 00 Set Up SBAS Environment
- 💐 01a Create SBAS Alternative
- 🛒 01b Load SBAS Alternative
- 🛐 01c Import Legacy SBAS Alternative
- 01d Import Modern SBAS Alternatives 01e - Edit SBAS Alternative
- 02a Convert Graphics to New Features 02b - Convert GenCade data to SBAS Features
- 03a Add Selected Features to Micro Alternative
- 03b Add Selected Features to Macro Alternative
- 04a Update Littoral Alternative Values
- 04b Update Flux Alternative Values
- 05a Change Symbology
- 05b Reverse Fluxline Direction
- 06a Export Alternative to ZIP
- 06b Upload Alternative to Enterprise
- 07 Delete SBAS Alternative

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- 🕀 🧰 SBAS
- 🗄 🚞 Templates
- 🗄 🔟 SBAS_Data.gdb sbas prod user.sde





- 🔁 Sediment Budget Analysis System (SBAS) for ArcGIS 10.1 and 10.2.pdf

- B SBAS

INSTALLATION STEPS (README.TXT)

Installation:

- 1. Extract ZIP distribution
- 2. Move SBAS directory to one's desired location
- 3. Run SBAS\comtypes-0.6.2\install_comtypes.bat
- 4. Run SBAS\install_dependencies.bat
- 5. Within the Catalog, add a Folder Connection to the SBAS directory
- 6. Within the Folder Connection to the SBAS toolbox, expand the toolbox and execute the "00 Set Up SBAS Environment" tool.





File Name

INSTALL TROUBLESHOOTING

If a red X appears next to the ArcMap SBAS toolbox, verify 3 files included in the SBAS installation:

- ..\SBAS\comtypes-0.6.2\install_comtypes.bat
- ..\SBAS\install_dependencies.bat
- ..\SBAS\python_arcobjects\Snippets.py
- Open each .bat file in a text editor and verify the active version of ArcGIS is listed in the logic

```
if exist c:\Python27\ArcGIS10.2 (
    set python=c:\Python27\ArcGIS10.2\python.exe
) else if exist c:\Python27\ArcGIS10.1 (
    set python=c:\Python27\ArcGIS10.1\python.exe
) else if exist c:\Python27\ArcGIS10.3 (
    set python=c:\Python27\ArcGIS10.4 (
    set python=c:\Python27\ArcGIS10.4 \python.exe
) else if exist c:\Python27\ArcGIS10.5 (
    set python=c:\Python27\ArcGIS10.5 \python.exe
) else (
    echo Unknown Python install path.
    pause
    exit 1
    Install comptypes.bat & install dependencies.bat
```

File Name

Snippets.py





GENERAL SBAS TROUBLESHOOTING

- Ensure only ONE instance of ArcMap is open
- Verify that the SBAS setup tool created a Data Frame named, "SBAS". This Data Frame needs to keep the name "SBAS" and sit in the first position in the Table of Content
- Tools in the SBAS toolbox are to be run sequentially. If you see a red X next to the tool you wish to run, check that your run all prerequisite steps.
- If you believe your sequence is correct but a red X still appears or your Alternative is not listed for selection, refresh the toolbox by right-clicking on the SBAS.pyt file and choose Refresh.





File Name

ORACLE CLIENT INSTALLATION

Create Environmental Variables for your User Account

- 1) Download Oracle instantclient (or contact ACE-IT for assistance)
- **2)** Unzip the ZIP file (C:\Oracle\instantclient_12_1).
- **3)** Start > Search Windows > Environment. Choose 'Edit Environment Variables for your Account'.
- 4) Create 2 new Variables:
 - **Path** (set variable path to C:\Oracle\instantclient_12_1)
 - If a Path variable is already listed in the User Variables section of the Environment Variables dialog, select it, and then click Edit. Keep the existing value, add a semi-colon (;) then the path to the instanclient.
 - **TNS_ADMIN** (set to C:\Oracle\TNSNAMES)





SBAS: TOOL INPUT

- Littoral Cell footprint with detailed attributes of:
 - Volume Change
 - Placement & Removal Volumes
 - Sediment Transport Volumes
- Sediment Transport Direction
 - Sediment Transport Rates
- Data is grouped into Alternatives
 - Alternative—A representation of one set of assumed conditions for a sediment budget. Each alternative has its own set of littoral cells (with delta, placement [input], and removal [output] volumes) and fluxes.
 - Alternatives may be created to reflect different assumptions about sediment-transport paths/rates and engineering activities, or they may reflect different time periods.
 - At least one alternative must be created in an SBAS session. Alternatives hold all values applied to littoral cells and fluxes.





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SBAS.pyt 3 00 - Set Up SBAS Environment 3 01a - Create SBAS Alternative 3 01b - Load SBAS Alternative § 01c - Import Legacy SBAS Alternative 3 01d - Import Modern SBAS Alternatives 3 01e - Edit SBAS Alternative 3 02a - Convert Graphics to New Features 3 02b - Convert GenCade data to SBAS Features 3 03a - Add Selected Features to Micro Alternative 3 03b - Add Selected Features to Macro Alternative 3 04a - Update Littoral Alternative Values 3 04b - Update Flux Alternative Values 💐 05a - Change Symbology 3 05b - Reverse Fluxline Direction 3 06a - Export Alternative to ZIP 3 06b - Upload Alternative to Enterprise 3 07 - Delete SBAS Alternative

File Name

SBAS DATABASE SCHEMA

- All SBAS generated data is houses in the SBAS_Data file geodatabase
- All **geometries** are housed in:
 - Micro Budgets: SedimentManagementCell (Littoral Cell), SedimentTransportDirection (Flux)
 - Macro Budgets: SedimentManagementMacroCell (Littoral Cell), SedimentMacroFlux (Flux)
- Cells can we used in multiple Alternatives. These nonspatial tables contain a foreign key to a flux or cell geometry:
 - SedimentManagementScenarios (All Alternatives)
 - SedimentManagementCellScenrio (All Cell Values)
 - SedimentManagemetnFluxScenario (All Flux Values)

- 🖃 间 SBAS_Data.gdb
 - BasemapCounties
 - 😁 BasemapShoreline
 - 🔲 Metadata
 - 😑 SedimentMacroFlux
 - SedimentMacroLittoral
 - SedimentMacroTransportDirection
 - SedimentManagementCell
 - SedimentManagementCellScenario
 - SedimentManagementFluxScenario
 - SedimentManagementMacroCell
 - SedimentManagementMacroLittoral
 - SedimentManagementScenario
 - 😑 SedimentTransportDirection





SBAS: TOOL OUTPUT

- Calculated Residual:
 - Identifies, per cell, if sediment in primary moving in or out.
- Sediment Budget:
 - Assists the District in identifying the erosion and accretion areas along a swath of shoreline.
- Published Metadata Record:
 - Metadata allows the budget to be discoverable to others and provides an official archive of the budget.

| 🖃 🌍 SBAS.pyt |
|--|
| 💐 00 - Set Up SBAS Environment |
| 3 01a - Create SBAS Alternative |
| 3 01b - Load SBAS Alternative |
| 💐 01c - Import Legacy SBAS Alternative |
| 3 01d - Import Modern SBAS Alternatives |
| 💐 01e - Edit SBAS Alternative |
| 3 02a - Convert Graphics to New Features |
| 3 02b - Convert GenCade data to SBAS Features |
| 💐 03a - Add Selected Features to Micro Alternative |
| 3 03b - Add Selected Features to Macro Alternative |
| 💐 04a - Update Littoral Alternative Values |
| 💐 04b - Update Flux Alternative Values |
| 💐 05a - Change Symbology |
| 💐 05b - Reverse Fluxline Direction |
| 3 06a - Export Alternative to ZIP |
| 3 06b - Upload Alternative to Enterprise |
| 3 07 - Delete SBAS Alternative |





SBAS DEMO

Using ArcGIS 10.4





CREATING SEDIMENT BUDGETS

| | CO - Set Up SBAS Environment |
|-------------------------------------|---|
| P ot - Create CDAC Alternative | Ola - Create SBAS Alternative State of the state |
| 3 01a - Create SBAS Alternative | S 01c - Import Legacy SBAS Alternative |
| | S 01d - Import Modern SBAS Alternatives |
| Budget Type | 💐 01e - Edit SBAS Alternative |
| Micro | Gauge Convert Graphics to New Features O2h Convert Graphics to New Features |
| Alternative Name | O20 - Convert Gencade data to SBAS Features O3a - Add Selected Features to Micro Alternative |
| | 3 03b - Add Selected Features to Micro Alternative |
| Alternative Description | 3 04a - Update Littoral Alternative Values |
| | |
| Author | 💐 05a - Change Symbology |
| Quipley Justin R CONTRACTOR @ SAM | OSb - Reverse Fluxline Direction OSb - Reverse Fluxline Direction |
| Quiney, Justin R CONTRACTOR @ SAM | 3 06b - Export Alternative to Enterprise |
| Geographic Area Name or Description | 3 07 - Delete SBAS Alternative |
| | |
| Date From | |
| | Note: All data collected here is used |
| Data Through | |
| · Date Through | to automatically create an ISO- |
| | compliant metadata record so the |
| | sodimont budgot cab bo discovered |
| | Seulment buuget cab be uiscovered |
| | at a later point. |
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| OK Cancel Er | nvironments Show Help >> |
| | |
| | |
| | US Army Corps of Engineers. |

🗆 🌍 SBAS.pyt

CREATING SEDIMENT BUDGET CELLS



Using the ArcMap Drawing tool, sketch the littoral cells in the mapping display, using basemap data for reference.

When satisfied, convert to features.

Littoral Cell—A collection of information describing similar physical, biological, and cultural characteristics within a particular area along a river, lake, sea, or ocean. Littoral cell data can be in the form of a map, database, or text. The boundaries of the littoral cells can be defined either by morphological features (such as ebb and flood shoals, an inlet throat, and adjacent beaches) or by political features (such as nautical charts and municipal boundaries).

Feature—A point, line, or polygon that represents an object on a map.

CREATING SEDIMENT BUDGETS - GEOMETRY

Q Untitled.mxd - ArcMap





CREATING SEDIMENT BUDGET FLUXES



ADDING VALUES TO SEDIMENT BUDGETS

- Scenario to Update—The name of the alternative; the current alternative is selected by default
- Feature Name—The name of the cell as assigned by the user or SBAS
- Delta Volume—Volume change of sediment within the cell (in the units specified in the Units drop-down)
- Placement Value—Amount of sediment placed in the cell (in the units specified in the Units drop-down)
- Removal Value—Amount of sediment removed from the cell (in the units specified in the Units drop-down), typically through dredging
- Confidence—Your certainty level that the values assigned to the littoral cell in this dialog are accurate—No Data (default), High, Medium, or Low
- Units—Units in which the delta, placement, and removal volumes are recorded— Cubic Yards (default) or Cubic Meters
- (Optional) Intersecting Flux Values (For Display Only)—Visual

3 04a - Update Littoral Alternative Values
3 04b - Update Flux Alternative Values

| Mobile Bay_test | | | • |
|--|---|-------------------------------------|--------|
| eature Name | | | |
| Cubic Meters | | | |
| elta volume | | | |
| | | | 10 |
| lacement value | | | |
| | | | 40 |
| temoval value | | | |
| | | | 0 |
| Confidence (optional) | | | |
| No Data | | | |
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| Inits Cubic Meters | | | |
| Inits Cubic Meters eature Description (optiona | I) | | ¥ |
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| Inits Cubic Meters reature Description (optiona ntersecting Flux Values (For Flux Line (read only) unassigned flux lines 3 | l) Display Only) (optiona Type (read only) Source | I) Q Value (read only) 0 | • |
| Inits Cubic Meters Reature Description (optional Intersecting Flux Values (For Flux Line (read only) unassigned flux lines_3 unassigned flux lines_2 | l) ⁻ Display Only) (optiona Type (read only) Source Sink | I) Q Value (read only) 0 0 | • • |
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ADDING VALUES TO SEDIMENT BUDGETS

- Scenario to Update—The name of the alternative; the current alternative is selected by default
- Feature Name—The name of the flux as assigned by the user or SBAS
- Q Value—The volume of sediment moved into or out of a littoral cell
- Confidence—Your certainty level that the values assigned to the flux line in this dialog are accurate—No Data (default), High, Medium, or Low
- Units—Units in which the delta, placement, and removal volumes of the littoral cell are recorded—Cubic Yards, Cubic Yards/Year, Cubic Meters, or Cubic Meters/Year

| Scenario to update | | | | |
|---------------------|------------|--|--|---|
| Mobile Bay_test | | | | - |
| Feature Name | | | | |
| Flux32fb | | | | |
| Q value (decimal) | | | | |
| | | | | 0 |
| Confidence (optiona | l) | | | |
| No Data | | | | • |
| Units | | | | |
| Cubic Meters | | | | • |
| Feature Description | (optional) | | | |
| | | | | |
| | | | | |
| | | | | |





LITTORAL CELLS & SEDIMENT FLUX VISUALIZATION



 $\Sigma Q_{source} - \Sigma Q_{sink} - \Delta V + P - R = Residual$





MACRO BUDGETS

When localized Micro Sediment Budgets are complete*, littoral cells can be grouped into "Macro Budget Cells"



*If a Macro budget is created for a Micro budget, the Micro Budget can no longer be edited. To resume editing of the Micro budget, delete the Macro Alternative with tool 07.





SAVING AND RETRIEVING SEDIMENT BUDGETS

- All data is automatically saved to the SBAS_Data.gdb as new features and values are created or updated.
- To share budget with another SBAS users extract just the active alternative, use Tool 6a – Export Alternative to ZIP to create a composite file.
- A new file geodatabase will be created that ONLY includes data for the selected Alternative.
- An MXD (ArcMap Project) file can be saved if you add non-SBAS feature classes or additional basemaps into the display.
- Retrieving Alternative
 - To load the littoral cells and fluxes into any ArcMap session from a ZIP file, use Tool 1d – Import Modern SBAS Alternative
 - If data was not exported into a ZIP, alternatives can also be loaded with the Tool 1b – Load Alternative. This directly connects to the SBAS_Data.gdb.



SBAS: TOOL OUTPUT

- Calculated Residual:
 - Identifies, per cell, if sediment in primary moving in or out.
- Sediment Budget:
 - Assists the District in identifying the erosion and accretion areas along a swath of shoreline.
- Published Metadata Record:
 - Metadata allows the budget to be discoverable to others and provides an official archive of the budget.

SBAS.pyt 3 00 - Set Up SBAS Environment 3 01a - Create SBAS Alternative 3 01b - Load SBAS Alternative S 01c - Import Legacy SBAS Alternative 3 01d - Import Modern SBAS Alternatives 3 01e - Edit SBAS Alternative 3 02a - Convert Graphics to New Features 3 02b - Convert GenCade data to SBAS Features 3 03a - Add Selected Features to Micro Alternative 3 03b - Add Selected Features to Macro Alternative 3 04a - Update Littoral Alternative Values O4b - Update Flux Alternative Values 💐 05a - Change Symbology 3 05b - Reverse Fluxline Direction Alternative to 7ID 3 06b - Upload Alternative to Enterprise 307 - Delete SBAS Alternative





SBAS IN THE ENTERPRISE

How others can access your final datasets





SBAS WORKSPACES

- All SBAS data remains on your local machine until they are "uploaded to the enterprise". (Tool 6b Upload Alternative to the Enterprise)
- "Into the Enterprise" = central USACE database that is available through Web Services
 - The SBAS installation include a SDE connection to the central USACE database holding all finalized SBAS data.
 - In order to publish, an Oracle Client must be available on your machine.
- Web Services are public (read-only) data connectors that allow SBAS alternatives to be accessed by desktop or online mapping applications.
- The Web Services are hosted from CESAM and read the CPC data.
- Multiple web maps call these web services.





File Name

PRODUCTION DATA WORKFLOW

1. Local Sediment Budget Created

> 2. Budget Uploaded to Enterprise

3. Using the SDE connection provided in the SBAS install, the content of the selected Alternative is appended to the USACE enterprise feature classes and tables that support the national SBAS dataset

2. Metadata is created from content provided in the Alternative Description and posted to Metadata Manager





US Army Corps of Engineers

METADATA MANAGER

| | X |
|--|--|
| ()) http://metadata.usace.army.mil/geoportal/catalog/search/resource/details. P - C 🛛 Sedi) Met) M. × | <u>ې چې کې انځانې کې انځانې کې انځانې کې انځانې کې انځانې کې انځانې کې کې</u> |
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| Metadata Manager | ^ |
| HOME SEARCH BROWSE LAUNCH MAP VIEWER | |
| Details Review Relationships | |
| Galveston_budget | |
| General Information | |
| File Identifier: {5668d504-deab-42cc-bcaf-489926b8329f} | |
| Metadata Language: en Metadata Date Stamp: 2015-04-24 | |
| Organization: Frey, Ashley E ERDC-RDE-CHL-MS | |
| Organization Role: author | |
| Identification Information | |
| Title: Galveston_budget | |
| Dataset | |
| Date: | |
| Dataset Language: | |
| Abstract: About this SBAS Alternative: A test budget created to demonstrate SBAS. What is SBAS? Sediment budgets provide a conceptual and quantitative model of the magnitudes and pathways of sediment transport at inlets and adjacent beaches for a given timeperiod. Sediment budgets give a framework for understanding complex inlet and coastal systems and their responses to coastal engineering projects. Any convenient method, such as a spreadsheet application, can be used to formulate and calculate a sediment budget. SBAS is a convenient method for formulating regional sediment budgets for coastal regions, including inlets, because it is visually based, provides an integrated picture of the processes while archiving detailed calculations within the system, and allows variations in the sediment budget to be rapidly examined. | |
| | |
| Data Theme | |
| Theme Topics: Environment and Conservation, Geological and Geophysical, Oceans and Estuaries | |
| Spatial Domain | ~ |

- Published metadata allows sediment budgets to be discovered.
- Content can be designed to be consumed into other applications where web services are supported.
- The architecture of USACE's Metadata Manager is being modified to be registered with data.gov





http://metadata.usace.army.mil/geoportal/catalog/main/home.page

METADATA, WEB SERVICES & ONLINE MAPPING

| HOME S | EARCH | BROWSE | | LAUNCH MAP VIEWER |
|----------------|---|--|---|---|
| etails Revi | iew Rel | ationships | 1 | |
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| O | rganizatio | n: Frey, Ashley E ERDC-RDE-CHL-MS | | |
| Organi | zation Rol | 2: author | | |
| J Identificati | on Inform | ition | | |
| Title | e: Galvest | on_budget | | |
| Datas | et | | | |
| Publicatio | on 2015-0 | 1-24 | | |
| Datas | e: ot | | | |
| Languag | e: en | | | |
| Abstrac | t: About t model o Sedime coastal calculat regions detaileo | is SBAS Alternative: A test budget. What is SBAS? Sediment bu f the magnitudes and pathways of sediment transport at inlets at budgets give a framework for understanding complex inlet ar engineering projects. Any convenient method, such as a spreas a sediment budget. SBAS is a convenient method for formulat including inlets, because it is visually based, provides an integ calculations within the system, and allows variations in the se | adgets provide a concept and adjacent beaches ad coastal systems and dsheet application, can ing regional sediment b rated picture of the pro diment budget to be raj | tual and quantitative for a given timeperiod. their responses to be used to formulate and udgets for coastal cesses while archiving pidly examined. |
| Doto Typ | e. Vector | | | |

Spatial Domain

West Bounding Longitude: -95.2997192145 South Bounding Latitude: 29.0493497025 East Bounding Longitude: -94.3316812945 North Bounding Latitude: 29.8270954425



- Online mapping applications are designed to read published SBAS metadata records.
- Using the accessible web service URL, applications can quickly query (text and spatial), load, and draw sediment budgets directly pulled from the masterly SBAS database.

