2023 Delta-X Data Workshop

Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2

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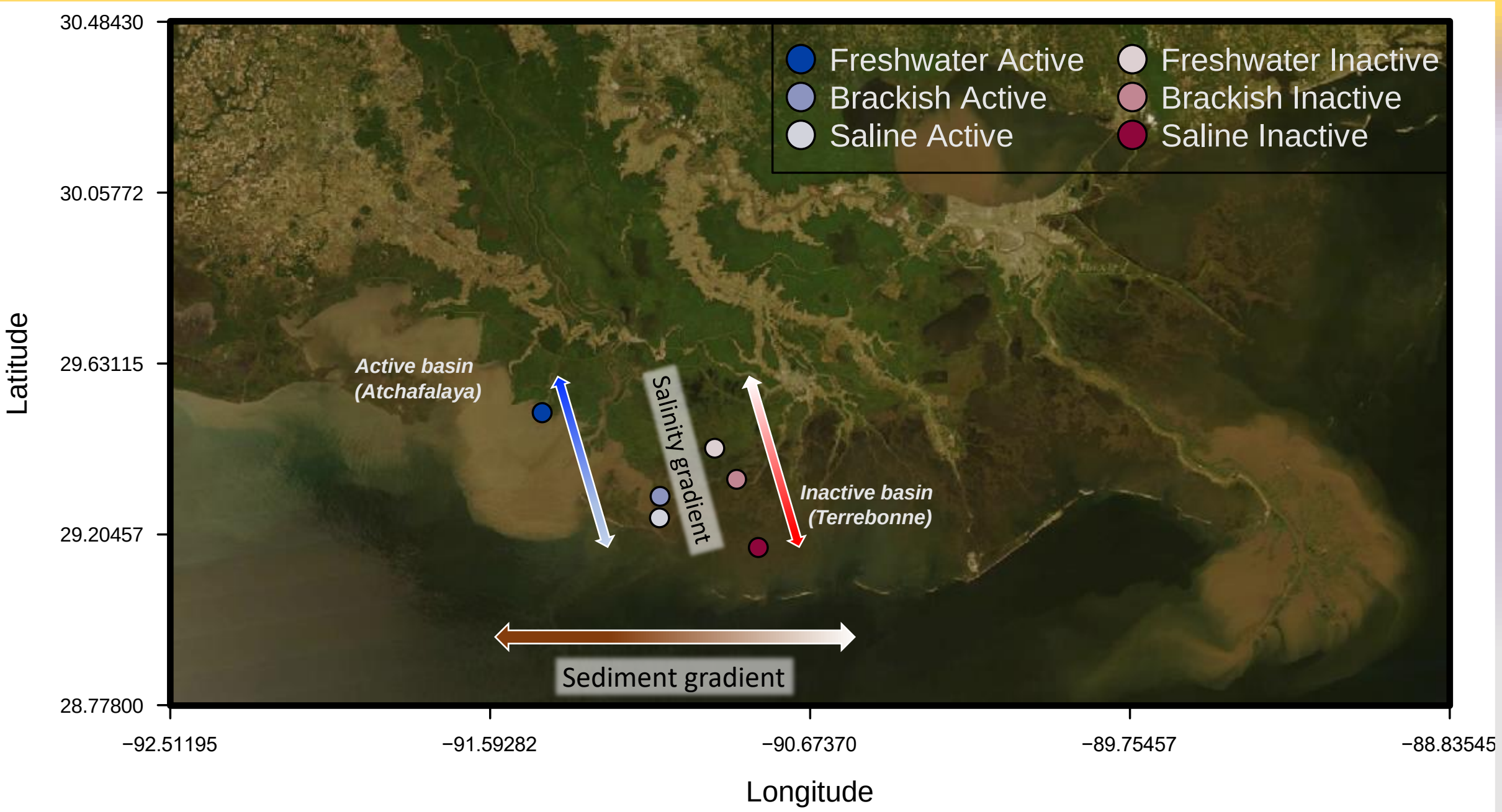
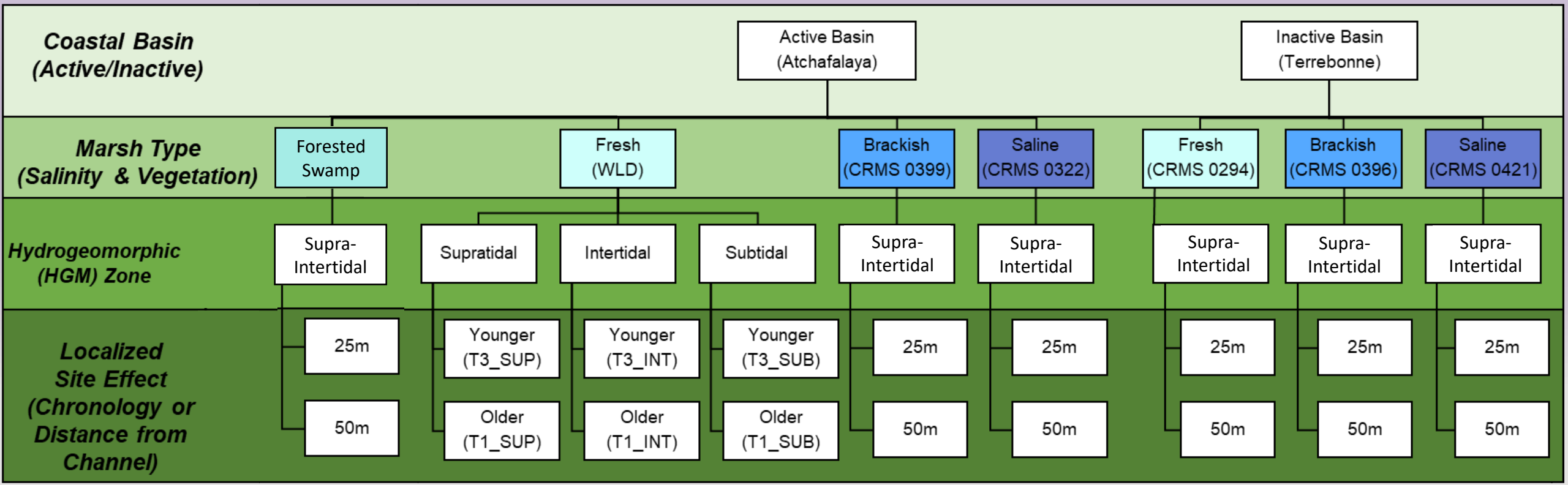
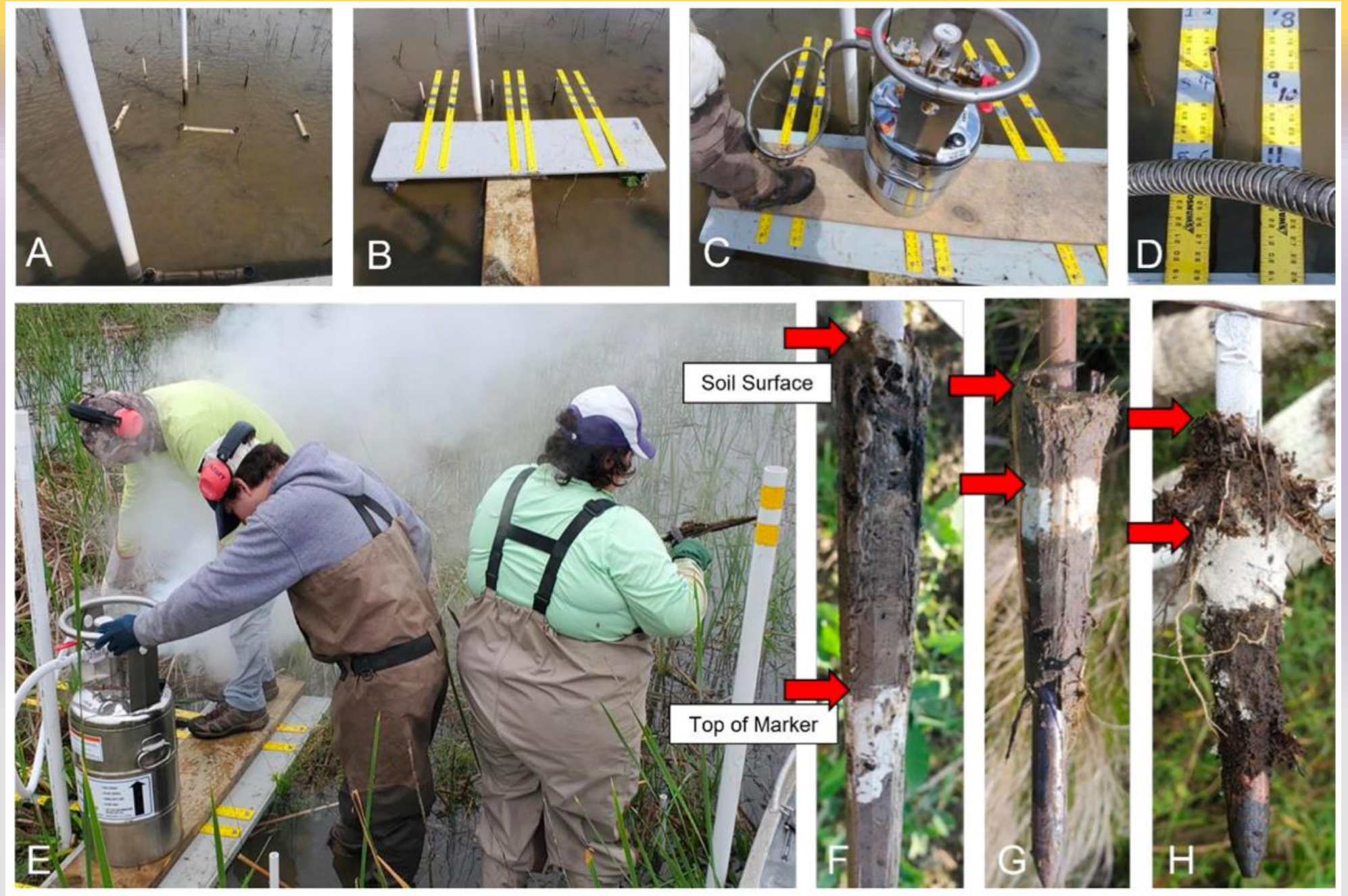

Freshwater Active
Brackish Active
Saline Active
Freshwater Inactive
Brackish Inactive
Saline Inactive
Active basin
(Atchafalaya)
Salinity gradient
Inactive basin
(Terrebonne)
Sediment gradient
30.48430
30.05772
29.63115
29.20457
28.77800
Latitude
−92.51195
−91.59282
−90.67370
−89.75457
−88.83545
Longitude

Wetland Soil Development Along Salinity and Hydrogeomorphic Gradients in Active and Inactive Deltaic Basins of Coastal Louisiana

Amanda Fontenot, *Louisiana State University and Agricultural and Mechanical College*

Follow




A
B
C
D
E
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H
Soil Surface
Top of Marker

https://daac.ornl.gov/cgi-bin/dsviewer.pl?ds_id=2079

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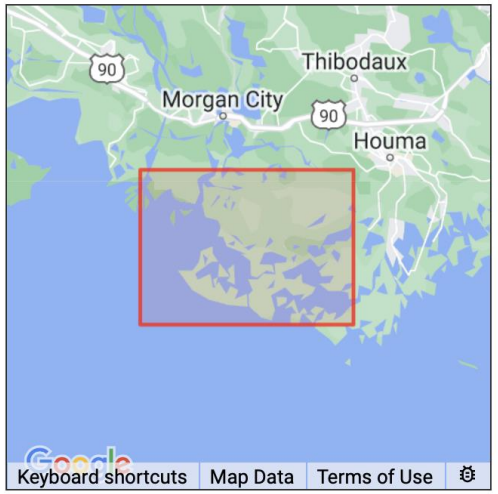
Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2

Overview

DOI	https://doi.org/10.3334/ORNLDAAC/2079
Version	2
Project	Delta-X
Published	2022-09-23
Updated	2022-09-23
Usage	63 downloads



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Spatial Coverage

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Description

This dataset provides elevation, hydrogeomorphic zone classification, soil carbon content, bulk density, organic matter content, and sediment accretion measurements collected at feldspar stations established near Louisiana's Coastwide Reference Monitoring Systems (CRMS) sites and on Mike Island in Wax Lake Delta (WLD). Feldspar stations were established to capture recent sediment deposition rates across hydrogeomorphic zones defined as discrete surface elevation ranges relative to NAVD88 (e.g., subtidal < -0.04 m, intertidal -0.04 m to 0.30 m, and supratidal > 0.30 m). Hydrogeomorphic zones classification was based on marsh surface elevations extracted from the U.S. Geological Survey (USGS) Atchafalaya 2 project LiDAR Survey 2012 digital elevation model (https://www.sciencebase.gov/catalog/item/543e6b86e4b0fd76af69cf4c). Between two and three feldspar stations were deployed approximately 25 and 50 meters from the main channel to represent existing hydrogeomorphic zones in brackish and saline emergent marsh vegetation, tidal freshwater emergent marshes, and forested swamps. Cryocore technique was used to determine recent sediment deposition. Soil samples were collected to determine organic and inorganic fractions and organic carbon content. This dataset is from the Delta-X field studies conducted during Fall 2020, Spring 2021, and Fall 2021. The data is provided in comma-separated values (CSV) format.

Temporal Coverage

2019-10-04 to 2021-10-06

Science Keywords

SOLID EARTH > GEOMORPHIC LANDFORMS/PROCESSES > FLUVIAL PROCESSES > SEDIMENTATION

LAND SURFACE > SOILS > SOIL BULK DENSITY

TERRESTRIAL HYDROSPHERE > SURFACE WATER > SURFACE WATER PROCESSES/MEASUREMENTS

LAND SURFACE > SOILS > CARBON > SOIL ORGANIC CARBON (SOC)

TERRESTRIAL HYDROSPHERE > WATER QUALITY/WATER CHEMISTRY > SOLIDS > SEDIMENTS

Data Use and Citation

Twilley, R., A. Fontenot-Cassaway, and A. Rovai. 2022. Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/2079

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Data Files

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Show 25 entries

Filter:

Data File (Granule)	Size	Start Date	End Date	N Lat	S Lat	E Lon	W Lon
DeltaX_Soil_Properties_Fall2020_Spring2021_Fall2021.csv	53.0 KB	2019-10-04	2021-10-06	29.56	29.17	-90.82	-91.44

Showing 1 to 1 of 1 entries

‹ Previous 1 Next ›

Companion Files

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Dataset has 1 companion files.

- DeltaX_Feldspar_Sediment_V2.pdf

Additional Resources

Type	Title
Tutorial	Delta-X Applications Workshop

Version History

Version	Dataset Title	Published
1	Delta-X: Feldspar Sediment Accretion Measurements for Coastal Wetlands, MRD, LA, USA	2022-05-02
2	Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2	2022-09-23

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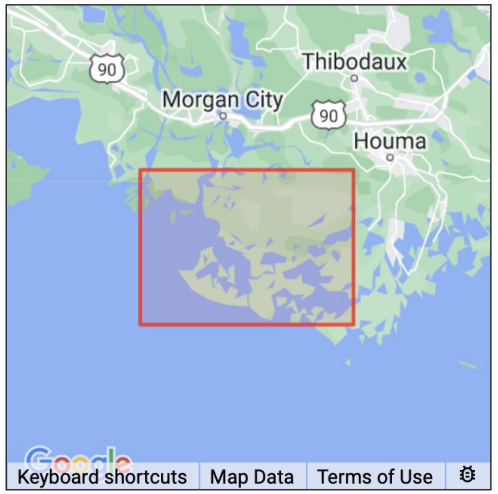

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Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2

Get Data

Documentation Revision Date: 2022-09-23

Dataset Version: 2

Summary

This dataset provides elevation, hydrogeomorphic zone classification, soil carbon content, bulk density, organic matter content, and sediment accretion measurements collected at feldspar stations established near Louisiana's Coastwide Reference Monitoring Systems (CRMS) sites and on Mike Island in Wax Lake Delta (WLD). Feldspar stations were established to capture recent sediment deposition rates across hydrogeomorphic zones defined as discrete surface elevation ranges relative to NAVD88 (e.g., subtidal < -0.04 m, intertidal -0.04 m to 0.30 m, and supratidal > 0.30 m). Hydrogeomorphic zones classification was based on marsh surface elevations extracted from the U.S. Geological Survey (USGS) Atchafalaya 2 project LiDAR Survey 2012 digital elevation model (https://www.sciencebase.gov/catalog/item/543e6b86e4b0fd76af69cf4c). Between two and three feldspar stations were deployed approximately 25 and 50 meters from the main channel to represent existing hydrogeomorphic zones in brackish and saline emergent marsh vegetation, tidal freshwater emergent marshes, and forested swamps. Cryocore technique was used to determine recent sediment deposition. Soil samples were collected to determine organic and inorganic fractions and organic carbon content. This dataset is from the Delta-X field studies conducted during Fall 2020, Spring 2021, and Fall 2021. The data is provided in comma-separated values (CSV) format.

https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

1. Dataset Overview

This dataset provides elevation, hydrogeomorphic zone classification, soil carbon content, bulk density, organic matter content, and sediment accretion measurements collected at feldspar stations established near Louisiana's Coastwide Reference Monitoring Systems (CRMS) sites and on Mike Island in Wax Lake Delta (WLD). Feldspar Stations were established to capture recent sediment deposition rates across hydrogeomorphic zones defined as discrete surface elevation ranges relative to NAVD88 (e.g., subtidal < -0.04 m, intertidal -0.04 m to 0.30 m, and supratidal > 0.30 m; after Bevington & Twilley 2018). Hydrogeomorphic zones classification was based on marsh surface elevations extracted from the U.S. Geological Survey (USGS) Atchafalaya 2 project LiDAR Survey 2012 digital elevation model (https://www.sciencebase.gov/catalog/item/543e6b86e4b0fd76af69cf4c). Between two and three feldspar stations were deployed approximately 25 and 50 m from the main channel to represent existing hydrogeomorphic zones in tidal freshwater emergent marshes, and forested swamps. Cryocore technique was used to determine recent sediment deposition. Soil samples were collected to determine organic and inorganic fractions and organic carbon content.

Project: Delta-X

The Delta-X mission is a 5-year NASA Earth Venture Suborbital-3 mission to study the Mississippi River Delta in the United States, which is growing and sinking in different areas. River deltas and their wetlands are drowning as a result of sea level rise and reduced sediment inputs. The Delta-X mission will determine which parts will survive and continue to grow, and which parts will be lost. Delta-X begins with airborne and in-situ data acquisition and carries through data analysis, model integration, and validation to predict the extent and spatial patterns of future deltaic land loss or gain.

Related Datasets

Twilley, R., A. Fontenot-Cassaway, and A. Rovai. 2021. Delta-X: Feldspar Sediment Accretion Measurements for Coastal Wetlands, MRD, LA, USA. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1998

- Version 1 release of this dataset.

Acknowledgements

This research was funded by the NASA Earth Venture Suborbital-3 Program, grant number NNH17ZDA001N-EVS3.

2. Data Characteristics

Spatial Coverage: Louisiana's Coastwide Reference Monitoring Systems (CRMS) sites and on Mike Island in Wax Lake Delta (WLD), southern coast of Louisiana, USA

Spatial Resolution: Point

Temporal Coverage: Fall 2020 sampling: 2020-10-04 to 2020-11-10; Fall 2021 sampling: 2021-08-19 to 2021-10-06; Spring 2021 sampling: 2021-03-21-2021-03-31 and 2021-08-19

Temporal Resolution: One-time field measurements

Site Boundaries: Latitude and longitude are given in decimal degrees.

Site	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude
Louisiana's CRMS sites and on Mike Island in WLD, southern coast of Louisiana	-91.4449	-90.8224	29.5643	29.1714

There is one data file in comma-separated values (.csv) format with this dataset: **DeltaX_Soil_Properties_Fall2020_Spring2021_Fall2021.csv**

Numeric data not included in the file are represented as -9999; missing text data are indicated by NA.

Table 1. Variables in the data file.

Variable	Units	Description

https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

2. Data Characteristics

Variable	Units	Description
basin		Basin: "Atchafalaya" or "Terrebonne"
campaign		Sampling season: Fall_2020, Spring_2021, or Fall_2021
site_id		Site ID's: CRMS_0294, CRMS_0322, CRMS_0399, CRMS_0396, CRMS_0421, CRMS_2568, WLD_T1, WLD_T3.
hydrogeomorphic_zone		Hydrogeomorphic zone classification: subtidal, intertidal or supratidal
elevation_navd88	m	Elevation in meters relative to NAVD88
latitude	degrees north	Latitude in decimal degrees
longitude	degrees east	Longitude in decimal degrees
station		Feldspar Stations ID's: herbaceous marshes (V25 and V50), forested swamp (T25), Supratidal (SUP), Intertidal (INT) and Subtidal (SUB)
plot		50 x 50 cm feldspar marker horizons plots: X, Y and Z
replicate		Replicate ID's for measurements taken from each cryocore: A,B or C
sample_id		Unique soil samples ID's
time_marker_deployed	YYYY-MM-DD hh:mm:ss	Date and time feldspar marker horizon plots were deployed

https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

2. Data Characteristics

Variable	Units	Description
time_marker_sampled	YYYY-MM-DD hh:mm:ss	Date and time feldspar marker horizon plots were sampled
notes_time_marker_sampled		Notes regarding sampling. Corresponding *time_marker_sampled* values are -9999
sediment_accretion	mm	Height of sediment accreted on top of feldspar marker horizon plots since deployment date
days_between_sampling_and_deployment	days	Number of days between feldspar marker horizon plots deployment and sampling event
normalized_accretion	mm yr^{-1}	Yearly normalized sediment accretion (mm yr^{-1}) obtained by multiplying sediment accretion (mm) by 365 days per year and then dividing the result by the number of days between feldspar marker horizon plots deployment and sampling event
soil_bulk_density	g cm^{-3}	Soil bulk density calculated from the sample's dry weight divided by its wet volume. Wet volume determined from the cross-sectional area of the core (cm^2) multiplied by the length the soil column interval (cm)
soil_organic_matter_content	percentage	Organic matter content determined by loss on ignition (% of dry mass)
soil_organic_carbon	percentage	Percent organic carbon determined on acid-fumigated soil samples using elemental analyzer (% of dry mass)
soil_organic_carbon_density	g cm^{-3}	Soil organic density obtained by multiplying sample's bulk density (g cm^{-3}) by its organic carbon fraction (g g^{-1}).

https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

3. Application and Derivation

Sediment accretion data will be used to calibrate and validate the ecogeomorphic (NUMAR, modified from NUMAN model by Chen and Twilley 1998) and hydrodynamic models. Data will be used to characterize in situ sediment deposition patterns across all Delta X sites and to explain changes in sediment deposition across distinct hydrogeomorphic zones. This research will contribute to a better understanding of changes in sediment accretion, organic matter accumulation rates and soil carbon sequestration rates due to vegetation composition, salinity gradients and riverine sediment and nutrient loadings.

4. Quality Assessment

Data quality for each loss-on-ignition and carbon content of soil samples was obtained using duplicate analytical replicates of each sample. The run precision was determined based on relative percent difference between replicates at an acceptance limit of <5%. For carbon content, accuracy and quality control were determined by the analysis of certified standard reference material during each run. Acceptable limits for accuracy were ± 5%. Data outside these limits was not used and samples were re-run to obtain new accurate values.

5. Data Acquisition, Materials, and Methods

Feldspar Stations were established nearby Louisiana's Coastwide Reference Monitoring Systems (CRMS) sites and on Mike Island in Wax Lake Delta (WLD) to capture recent sediment deposition rates across hydrogeomorphic zones. These zones were defined as discrete surface elevation ranges relative to NAVD88 (e.g., subtidal < -0.04 m, intertidal -0.04 m to 0.30 m, and supratidal > 0.30 m; after Bevington & Twilley 2018). Hydrogeomorphic zones classification was based on marsh surface elevation measurements acquired in November and December 2020 using a RTK GPS (Trible R12, using Geoid 18).

For CRMS_0294, CRMS_0322, CRMS_0399, CRMS_0396, and CRMS_0421, two feldspar stations were deployed in vegetated areas approximately 25 and 50 m from a main channel (V25 & V50). For CRMS_2568, two feldspar stations were deployed: one station in herbaceous vegetation (V25) and one station in forested vegetation (T25), both approximately 25 m from a main channel. In Wax Lake Delta (WLD), six feldspar stations were deployed: three stations along a transect near the island's apex (T1) at supratidal, Intertidal and subtidal (SUP, INT, and SUB) hydrogeomorphic zones, and three stations along a transect near delta front (T3) at intertidal and subtidal (SUP, INT, and SUB) hydrogeomorphic zones.

At each feldspar station, three 50 x 50 cm feldspar marker horizons plots (X, Y, and Z) were deployed on the soil surface. Each cryocore sample measured for accretion was given a replicate ID (A, B or C). Each cryocore showing a clear, white feldspar marker horizon was measured from the current soil surface to the top of the feldspar marker horizon. Each accretion measurement reported is the average of three individual measurements made with calipers.

To assess organic and inorganic fractions of newly deposited material, soil cores corresponding to sediment accretion measurements (e.g., height of sediment above feldspar marker) were collected next to feldspar markers plots using cryocore technique. This strategy reduced disturbance to feldspar markers horizon plots, extending the makers' longevity. Soil samples were dried at 60° C until constant weight. Bulk density was calculated as the sample's dry weight divided its wet volume (g cm^{-3}). Wet volume is determined from the cross-sectional area (cm^2) of the soil core multiplied by the depth of each soil section (cm, based on the height of sediment above feldspar marker). Samples were homogenized and ground using a Wiley Mill. Organic matter content was determined by loss on ignition after combusting samples of a known mass at 550°C for 2 hours (Davies, 1974). Soil samples were fumigated in a desiccator for 8 hours with 12M HCl to remove inorganic carbonates (Harris et. al. 2001). Percent organic carbon on fumigated samples was measured with a ECS 4010 elemental analyzer (Costech Analytical Technologies Inc., Valencia, California). Soil organic density was calculated by multiplying the sample's bulk density (g cm^{-3}) by the sample' s organic carbon fraction (g g^{-1}).

https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

6. Data Access

These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Delta-X: Feldspar Sediment Accretion Measurements, MRD, LA, USA, 2019-2021, Version 2

Contact for Data Center Access Information:

- E-mail: uso@daac.ornl.gov
- Telephone: +1 (865) 241-3952

7. References

Bevington A.E., and R.R. Twilley. 2018. Island edge morphodynamics along a chronosequence in a prograding deltaic floodplain wetland. Journal of Coastal Research 34:806-817. https://doi.org/10.2112/JCOASTRES-D-17-00074.1

Chen, R., and R.R. Twilley. 2019. A simulation model of organic matter and nutrient accumulation in mangrove wetland soils. Biogeochemistry 44:93–118. https://doi.org/10.1007/BF00993000

Davies, B. 1974. Loss-on-ignition as an estimate of soil organic matter. Soil Science Society of America Journal 38:150-151. https://doi.org/10.2136/sssaj1974.03615995003800010046x

Harris D., W.R. Horwáth, and C. van Kessel. 2001. Acid fumigation of soils to remove carbonates prior to total organic carbon or carbon-13 isotopic analysis. Soil Science Society of America Journal 65:1853–1856. https://doi.org/10.2136/sssaj2001.1853

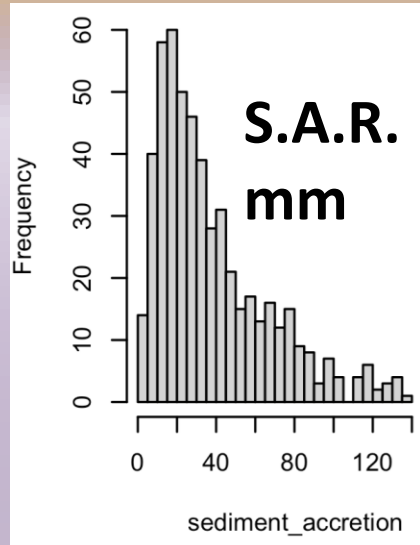
8. Dataset Revisions

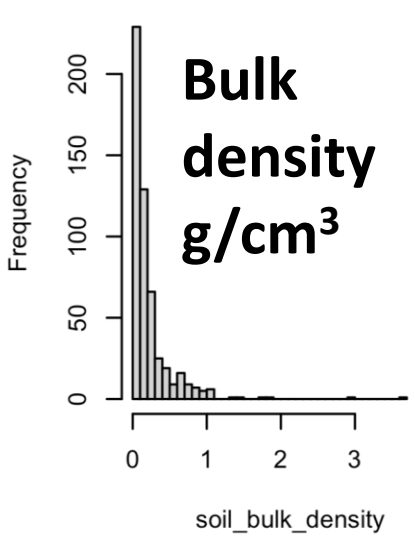
Version	Release Date	Description
2.0	2022-09-23	Fall 2021 data were added to the dataset; Fall 2020 and Spring 2021 data were updated.
1.0	2022-05-02	Initial release with Fall 2020 and Spring 2021 data.

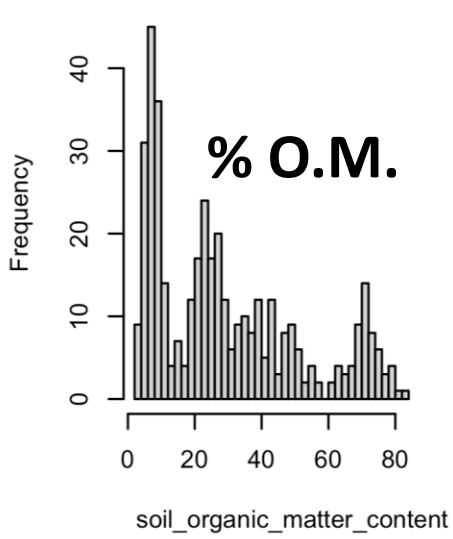
https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

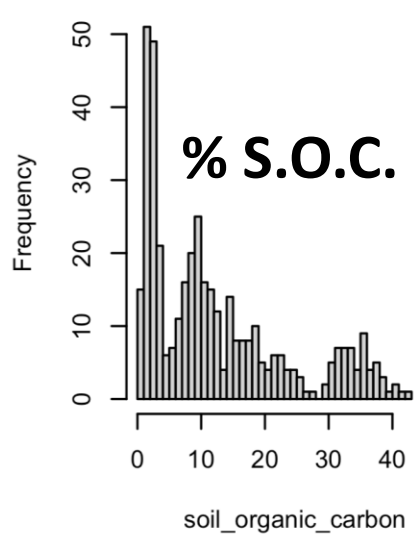
basin	Basin_2	campaign	site_id	marsh_type	hydrogeomorphic_zone	elevation_navd88	latitude	longitude	station	plot	replicate	sample_id	time_marker_deployed	time_marker_sampled	deployment_campaign	sediment_accretion	ays_between_sampling_and_deployment	ormalized_accretion	soil_bulk_density	soil_organic_matter_content	soil_organic_carbon	soil_organic_carbon_density
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	X	A	20F2568TXA	10/17/19 12:00	11/10/20 12:00	first	11	390	10	0.037	65.5	33.6	0.012
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	X	B	20F2568TXB	10/17/19 12:00	11/10/20 12:00	first	7	390	7	0.073	49	23.4	0.017
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	Y	A	20F2568TYA	10/17/19 12:00	11/10/20 12:00	first	12	390	11	0.047	63.4	31	0.015
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	Y	B	20F2568TYB	10/17/19 12:00	11/10/20 12:00	first	10	390	9	0.069	45.2	23	0.016
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	Z	A	20F2568TZA	10/17/19 12:00	11/10/20 12:00	first	14	390	13	0.026	46.5	21.1	0.005
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.554	29.56425622	-91.3548916	T25	Z	B	20F2568TZB	10/17/19 12:00	11/10/20 12:00	first	15	390	14	0.037	29.2	13	0.005
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	X	A	20F2568VXA	10/17/19 12:00	11/10/20 12:00	first	30	390	28	0.058	52.3	25.9	0.015
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	X	B	20F2568VXB	10/17/19 12:00	11/10/20 12:00	first	33	390	31	0.065	43.6	22.5	0.015
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	Y	A	20F2568VYA	10/17/19 12:00	11/10/20 12:00	first	37	390	35	0.104	42.9	21.5	0.022
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	Y	B	20F2568VYB	10/17/19 12:00	11/10/20 12:00	first	28	390	26	0.05	48.3	23	0.011
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	Z	A	20F2568VZA	10/17/19 12:00	11/10/20 12:00	first	31	390	29	0.052	35.3	17.3	0.009
Atchafalaya	Active	Fall_2020	CRMS_2568	forested_swamp	supratidal	0.386	29.56417537	-91.354901	V25	Z	B	20F2568VZB	10/17/19 12:00	11/10/20 12:00	first	30	390	28	0.067	43.3	20.9	0.014
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	X	A	20F294V25XA	10/9/19 12:00	10/14/20 12:00	first	16	371	16	0.068	66.1	35.1	0.024
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	X	B	20F294V25XB	10/9/19 12:00	10/14/20 12:00	first	46	371	45	0.021	67.4	35.4	0.008
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	X	C	20F294V25XC	10/9/19 12:00	10/14/20 12:00	first	33	371	32	0.049	65.9	34.9	0.017
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Y	A	20F294V25YA	10/9/19 12:00	10/14/20 12:00	first	30	371	30	0.034	70.4	35.8	0.012
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Y	B	20F294V25YB	10/9/19 12:00	10/14/20 12:00	first	24	371	24	0.04	70.5	33.8	0.013
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Y	C	20F294V25YC	10/9/19 12:00	10/14/20 12:00	first	25	371	25	0.043	72.8	33.7	0.014
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Z	A	20F294V25ZA	10/9/19 12:00	10/14/20 12:00	first	32	371	31	0.024	72.1	35.7	0.009
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Z	B	20F294V25ZB	10/9/19 12:00	10/14/20 12:00	first	46	371	45	0.031	68.5	34.4	0.011
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.248	29.41982701	-90.9479321	V25	Z	C	20F294V25ZC	10/9/19 12:00	10/14/20 12:00	first	37	371	36	0.025	68.5	38.1	0.01
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	X	A	20F294V50XA	10/9/19 12:00	10/14/20 12:00	first	14	371	14	0.045	80	40.3	0.018
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	X	B	20F294V50XB	10/9/19 12:00	10/14/20 12:00	first	9	371	9	0.063	72.7	35.9	0.023
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	X	C	20F294V50XC	10/9/19 12:00	10/14/20 12:00	first	18	371	18	0.018	76.7	36.8	0.007
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Y	A	20F294V50YA	10/9/19 12:00	10/14/20 12:00	first	16	371	16	0.029	75.3	37.8	0.011
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Y	B	20F294V50YB	10/9/19 12:00	10/14/20 12:00	first	17	371	17	0.026	77.7	40.4	0.01
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Y	C	20F294V50YC	10/9/19 12:00	10/14/20 12:00	first	23	371	23	0.02	70.7	35.8	0.007
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Z	A	20F294V50ZA	10/9/19 12:00	10/14/20 12:00	first	24	371	24	0.024	72.3	39.4	0.01
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Z	B	20F294V50ZB	10/9/19 12:00	10/14/20 12:00	first	14	371	14	0.046	82.4	34.4	0.016
Terrebonne	Inactive	Fall_2020	CRMS_0294	Freshwater	intertidal	0.261	29.41958981	-90.9477376	V50	Z	C	20F294V50ZC	10/9/19 12:00	10/14/20 12:00	first	18	371	18	0.02	78.8	41.7	0.009
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	X	A	20F322V25XA	10/9/19 12:00	10/13/20 12:00	first	21	370	21	0.224	31.2	14.3	0.032
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	X	B	20F322V25XB	10/9/19 12:00	10/13/20 12:00	first	18	370	18	0.186	37.5	16.7	0.031
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	Y	A	20F322V25YA	10/9/19 12:00	10/13/20 12:00	first	24	370	24	0.191	34.3	16.4	0.031
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	Y	B	20F322V25YB	10/9/19 12:00	10/13/20 12:00	first	25	370	25	0.185	25.8	10.3	0.019
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	Z	A	20F322V25ZA	10/9/19 12:00	10/13/20 12:00	first	26	370	26	0.236	26.3	12.3	0.029
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.143	29.24540229	-91.1063086	V25	Z	B	20F322V25ZB	10/9/19 12:00	10/13/20 12:00	first	23	370	23	0.189	38.2	17.7	0.033
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	X	A	20F322V50XA	10/9/19 12:00	10/13/20 12:00	first	15	370	15	0.063	44.9	19	0.012
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	X	B	20F322V50XB	10/9/19 12:00	10/13/20 12:00	first	16	370	16	0.198	42.4	18.4	0.036
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	Y	A	20F322V50YA	10/9/19 12:00	10/13/20 12:00	first	20	370	20	0.272	25.4	11.7	0.032
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	Y	B	20F322V50YB	10/9/19 12:00	10/13/20 12:00	first	11	370	11	0.221	36.3	15.6	0.035
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	Z	A	20F322V50ZA	10/9/19 12:00	10/13/20 12:00	first	14	370	14	0.152	48.6	21.9	0.033
Atchafalaya	Active	Fall_2020	CRMS_0322	Saline	intertidal	0.12	29.24568511	-91.1063154	V50	Z	B	20F322V50ZB	10/9/19 12:00	10/13/20 12:00	first	13	370	13	0.214	38.7	18.3	0.039
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	X	A	20F396V25XA	10/23/19 12:00	10/16/20 12:00	first	33	359	34	0.031	41.3	18.7	0.006
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	X	B	20F396V25XB	10/23/19 12:00	10/16/20 12:00	first	6	359	6	0.044	39.6	17.2	0.008
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	X	C	20F396V25XC	10/23/19 12:00	10/16/20 12:00	first	12	359	12	0.036	57.2	25.9	0.009
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	Y	A	20F396V25YA	10/23/19 12:00	10/16/20 12:00	first	6	359	6	0.083	43.8	19.8	0.017
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	Y	B	20F396V25YB	10/23/19 12:00	10/16/20 12:00	first	7	359	7	0.048	51.5	21.3	0.01
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	Z	A	20F396V25ZA	10/23/19 12:00	10/16/20 12:00	first	19	359	19	0.034	48.2	23.2	0.008
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34186159	-90.8852667	V25	Z	B	20F396V25ZB	10/23/19 12:00	10/16/20 12:00	first	29	359	29	0.06	39.8	19.5	0.012
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	X	A	20F396V50XA	10/23/19 12:00	10/16/20 12:00	first	10	359	10	0.128	39.1	17.2	0.022
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	X	B	20F396V50XB	10/23/19 12:00	10/16/20 12:00	first	34	359	35	0.062	34.5	15.3	0.009
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	Y	A	20F396V50YA	10/23/19 12:00	10/16/20 12:00	first	9	359	9	0.125	27.7	12.1	0.015
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	Y	B	20F396V50YB	10/23/19 12:00	10/16/20 12:00	first	14	359	14	0.046	38.8	16.4	0.008
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	Z	A	20F396V50ZA	10/23/19 12:00	10/16/20 12:00	first	11	359	11	0.094	32.9	14.4	0.014
Terrebonne	Inactive	Fall_2020	CRMS_0396	Brackish	intertidal	0.095	29.34192338	-90.88462	V50	Z	B	20F396V50ZB	10/23/19 12:00	10/16/20 12:00	first	10	359	10	0.196	22.3	10	0.02
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	X	A	20F399V25XA	10/9/19 12:00	10/13/20 12:00	first	15	370	15	0.425	20.1	8.8	0.037
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	X	B	20F399V25XB	10/9/19 12:00	10/13/20 12:00	first	19	370	19	0.323	22.5	8.5	0.027
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	Y	A	20F399V25YA	10/9/19 12:00	10/13/20 12:00	first	11	370	11	0.313	25.2	10.3	0.032
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	Y	B	20F399V25YB	10/9/19 12:00	10/13/20 12:00	first	23	370	23	0.242	22.4	9.8	0.024
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	Z	A	20F399V25ZA	10/9/19 12:00	10/13/20 12:00	first	14	370	14	0.431	22.3	10	0.043
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.168	29.29926093	-91.1050281	V25	Z	B	20F399V25ZB	10/9/19 12:00	10/13/20 12:00	first	15	370	15	0.295	19.6	8.6	0.025
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	X	A	20F399V50XA	10/9/19 12:00	10/13/20 12:00	first	21	370	21	0.317	18.8	7.9	0.025
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	X	B	20F399V50XB	10/9/19 12:00	10/13/20 12:00	first	13	370	13	0.308	23.6	11	0.034
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	Y	A	20F399V50YA	10/9/19 12:00	10/13/20 12:00	first	9	370	9	0.769	21.4	10.1	0.078
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	Y	B	20F399V50YB	10/9/19 12:00	10/13/20 12:00	first	15	370	15	0.3	22.3	9.5	0.028
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	Z	A	20F399V50ZA	10/9/19 12:00	10/13/20 12:00	first	17	370	17	0.297	25.8	11	0.033
Atchafalaya	Active	Fall_2020	CRMS_0399	Brackish	intertidal	0.21	29.29942752	-91.1047842	V50	Z	B	20F399V50ZB	10/9/19 12:00	10/13/20 12:00	first	19	370	19	0.29	21.4	10.9	0.032
Terrebonne		Fall_2020	CRMS_0421		intertidal	0.055	29.17143885	-90.8225398	V25	X	A	20F421V25XA	10/23/19 12:00	10/15/20 12:00	first	22		22	0.167	21.9	8.6	0.014

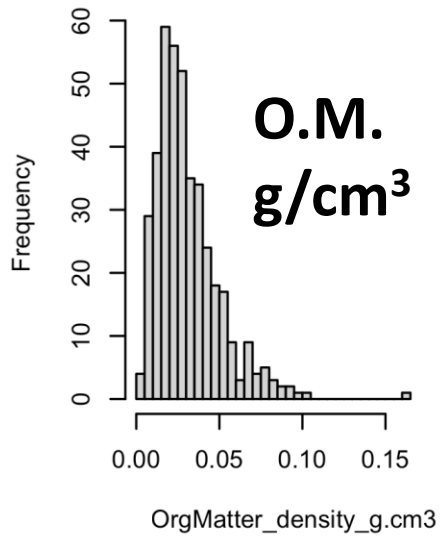
https://daac.ornl.gov/DELTAX/guides/DeltaX_Feldspar_Sediment_V2.html

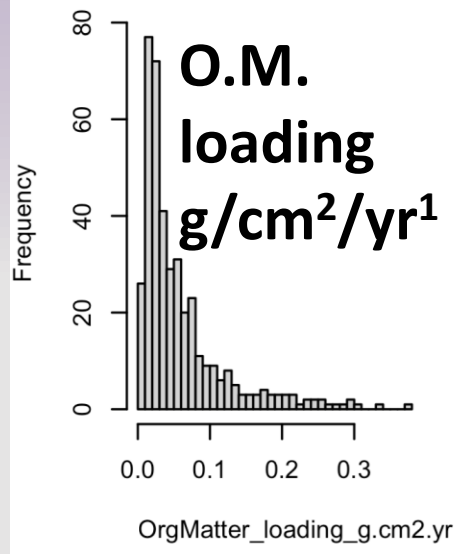


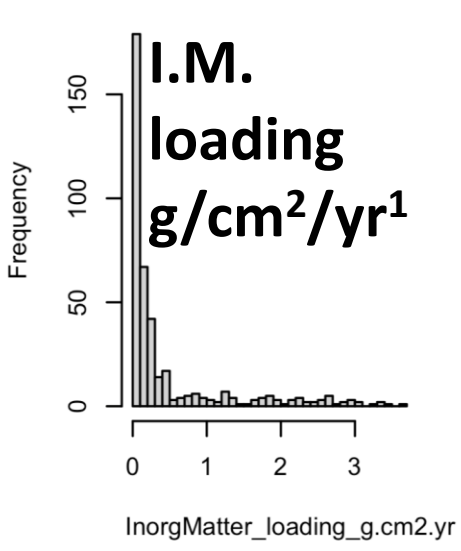


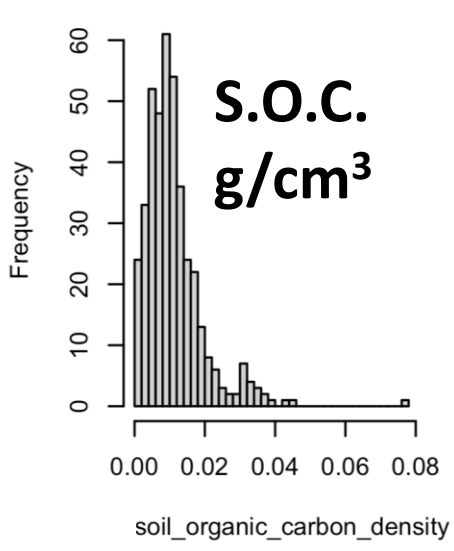


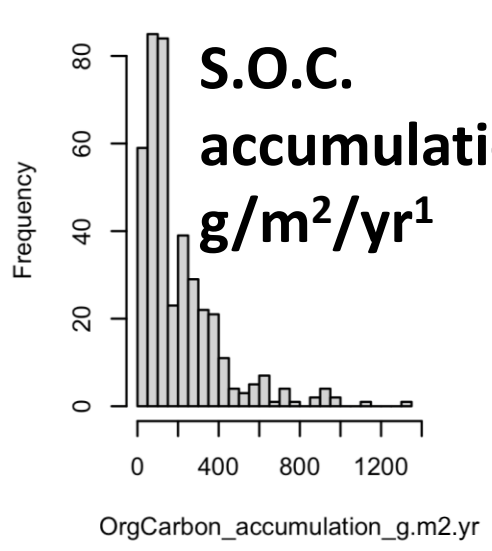


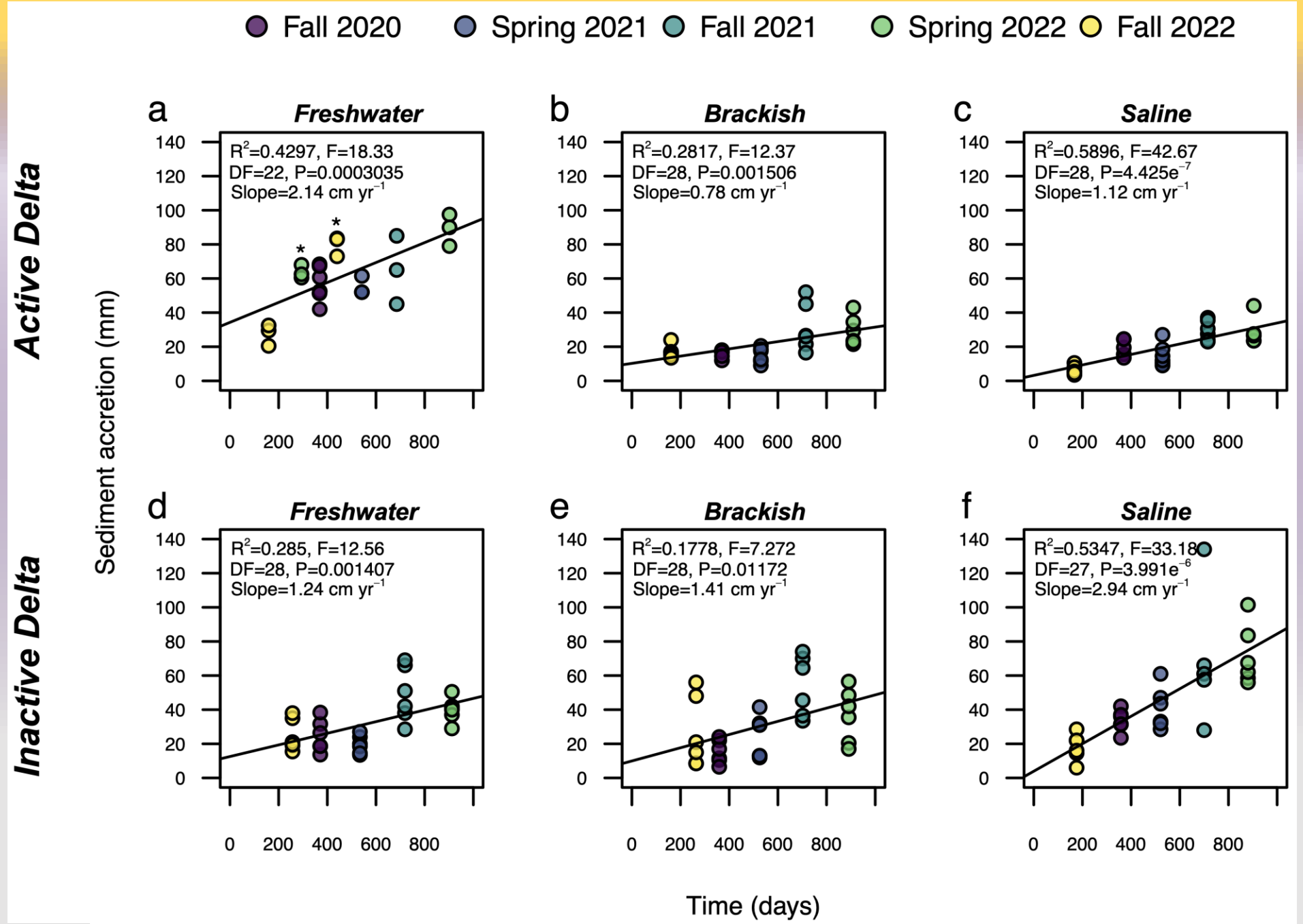


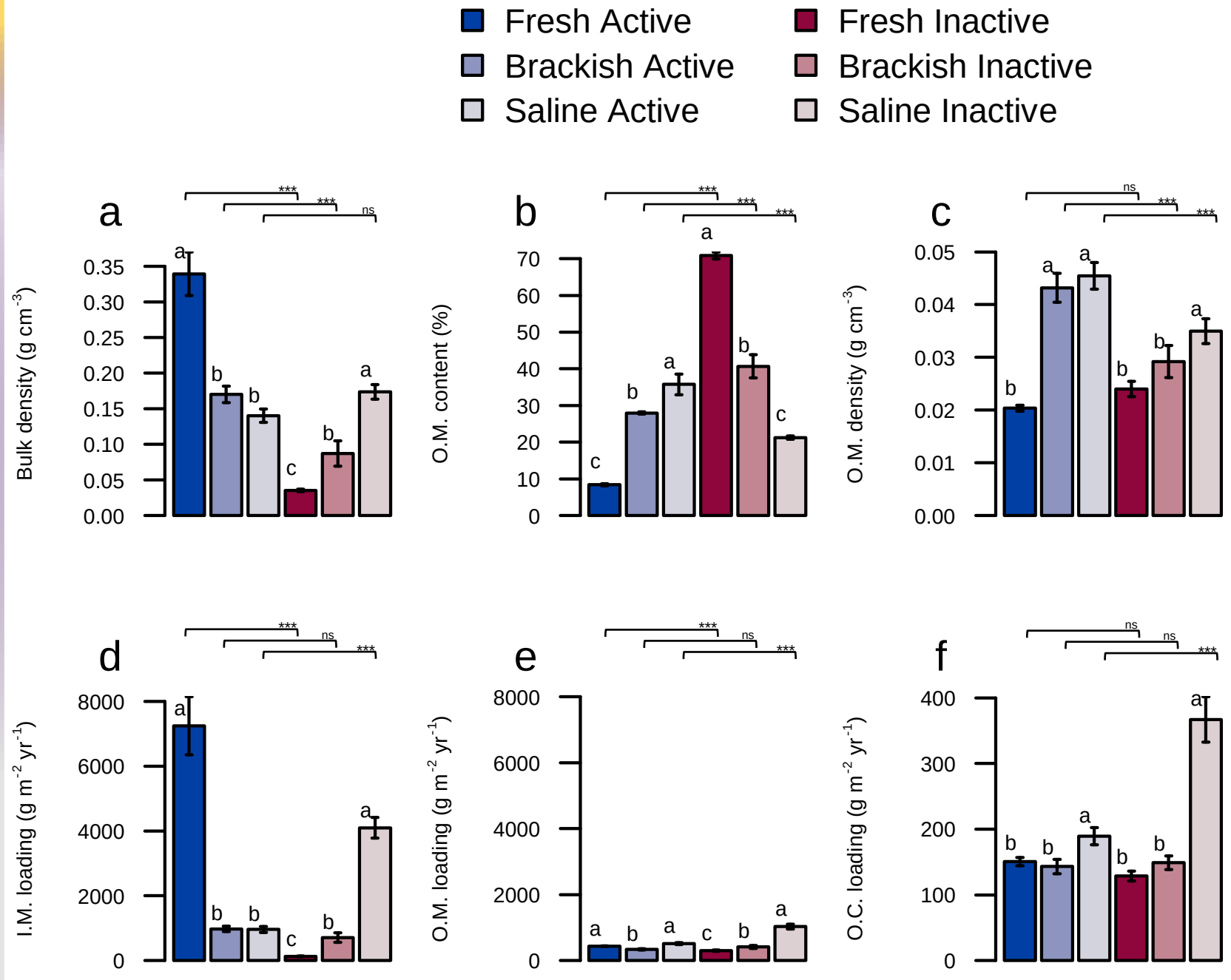









Fall 2020
Spring 2021
Fall 2021
Spring 2022
Fall 2022
Active Delta
Inactive Delta
Sediment accretion (mm)
Time (days)
a
Freshwater
R²=0.4297, F=18.33
DF=22, P=0.0003035
Slope=2.14 cm yr⁻¹
b
Brackish
R²=0.2817, F=12.37
DF=28, P=0.001506
Slope=0.78 cm yr⁻¹
c
Saline
R²=0.5896, F=42.67
DF=28, P=4.425e⁻⁷
Slope=1.12 cm yr⁻¹
d
Freshwater
R²=0.285, F=12.56
DF=28, P=0.001407
Slope=1.24 cm yr⁻¹
e
Brackish
R²=0.1778, F=7.272
DF=28, P=0.01172
Slope=1.41 cm yr⁻¹
f
Saline
R²=0.5347, F=33.18
DF=27, P=3.991e⁻⁶
Slope=2.94 cm yr⁻¹


Fresh Active
Brackish Active
Saline Active
Fresh Inactive
Brackish Inactive
Saline Inactive
a
b
c
d
e
f
Bulk density (g cm-3)
O.M. content (%)
O.M. density (g cm-3)
I.M. loading (g m-2 yr-1)
O.M. loading (g m-2 yr-1)
O.C. loading (g m-2 yr-1)
***
ns

2023 Delta-X Data Workshop

THANK YOU!

Robert R. Twilley, Principal Investigator

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