

EcoSML: Biodiversity Team Meeting 2019

Ting Zheng, Erin Hokanson Wagner, Justin Merz,
Phil Townsend

What is EcoSML?

Ecological Spectral Model Library

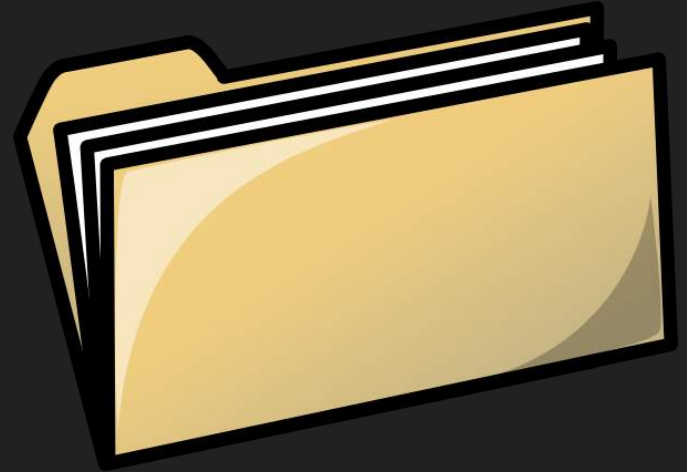
- EcoSML is a repository for spectral models and model coefficients. Currently EcoSML is optimized for PLSR models
- Upload models to the EcoSML repository or register and link your own repository to EcoSML
- EcoSML curators monitor uploads to ensure usability
- Recently launched and in the **alpha testing phase**
- Please let us know if you find bugs or have suggestions!!

Why is EcoSML important?

- Removes the need for users to recreate already published models
- Provides a platform for research groups to keep, organize, and search for their own models
- Acts as a conduit for sharing models with collaborators
- Opens the door for model comparison studies
- Makes hyperspectral data more accessible for new users

Package Directory

- Coefficients
 - 'apply_PLSR_coeffs.py'
- Application code
 - 'coefficients'
- Instructions (optional)
 - Can include instructions in the ReadMe when creating the package
- Example Spectra (optional)
 - 'test_spectra.csv'
- Example output (optional)
 - 'sample_results.csv'
- Evaluation report (optional)
 - 'PLSR_model_evaluation_report.xlsx'



Nitrogen



Ecological Spectral Model Library

⚠ This is an early Alpha of EcoSML. Please report any bugs or issues you have [here](#).

Top Organizations

[UW EnSpec](#)

1

Top Keywords

[chemistry](#)

[physiology](#)

[nitrogen](#)

[tree](#)

[forest](#)

Top Themes

1

[chemistry](#)

1

[physiology](#)

1

1

1

1

1

Package Management

[Login to Create Package](#)



[NASA](#)

Program: Advanced Information Systems Technology (AIST) Program
Grant Number: 80NSSC17K0244

EcoSML Team

University of Wisconsin-Madison Environmental Spectroscopy (EnSpec) Lab
PI: Phil Townsend
Project Manager: Erin Wagner
Lead Developer: Justin Merz

Nitrogen



Ecological Spectral Model Library

⚠ This is an early Alpha of EcoSML. Please report any bugs or issues you have [here](#).

Top Organizations

[UW EnSpec](#)

1

Top Keywords

[chemistry](#)[physiology](#)[nitrogen](#)[tree](#)[forest](#)

Top Themes

1

[chemistry](#)

1

[physiology](#)

1

1

1

1

1

Package Management

[Login to Create Package](#)[NASA](#)

Program: Advanced Information Systems Technology (AIST) Program
Grant Number: 80NSSC17K0244

EcoSML Team

University of Wisconsin-Madison Environmental Spectroscopy (EnSpec) Lab
PI: Phil Townsend
Project Manager: Erin Wagner
Lead Developer: Justin Merz

Login

Login with your [EcoSIS](#) account. If you don't have a EcoSIS account you can create one [here](#).

Username

Password

[Reset Password](#)
[Create Account](#)

LOGIN



User: ewagner

[LOGOUT](#)

[Manage My Account on EcoSIS](#)

All EcoSML accounts are managed through EcoSIS. To edit your profile or change your password, simply login to EcoSIS and edit your account.

[Manage My Organizations on EcoSIS](#)

Just like accounts all EcoSML organizations are managed through EcoSIS. To create a new organization or manage an existing organization, simply login to EcoSIS then click 'My Organizations'.

Github Account

Link your [GitHub](#) account and gain access to any EcoSML Hosted Repository via git CLI or via the GitHub repository webpage. This will allow you to make commits, cut releases or use GitHub issues via the standard GitHub UI as well as EcoSML.

 [AUTHORIZE](#)

My Organizations

[UW EnSpec](#)

My Packages

[Test_PLS_Chemistry_Physiology_2018](#) - PLS coefficients and application code for predicting chemical and physiological traits in leaves.

Nitrogen



Ecological Spectral Model Library

⚠ This is an early Alpha of EcoSML. Please report any bugs or issues you have [here](#).

Top Organizations

[UW EnSpec](#)

1

Top Keywords

[chemistry](#)

[physiology](#)

[nitrogen](#)

[tree](#)

[forest](#)

Top Themes

1

[chemistry](#)

1

[physiology](#)

1

1

1

1

1

Package Management

[Login to Create Package](#)



[NASA](#)

Program: Advanced Information Systems Technology (AIST) Program
Grant Number: 80NSSC17K0244

EcoSML Team

University of Wisconsin-Madison Environmental Spectroscopy (EnSpec) Lab
PI: Phil Townsend
Project Manager: Erin Wagner
Lead Developer: Justin Merz



User: ewagner

[LOGOUT](#)

[Manage My Account on EcoSIS](#)

All EcoSML accounts are managed through EcoSIS. To edit your profile or change your password, simply login to EcoSIS and edit your account.

[Manage My Organizations on EcoSIS](#)

Just like accounts all EcoSML organizations are managed through EcoSIS. To create a new organization or manage an existing organization, simply login to EcoSIS then click 'My Organizations'.

Github Account

Link your [GitHub](#) account and gain access to any EcoSML Hosted Repository via git CLI or via the GitHub repository webpage. This will allow you to make commits, cut releases or use GitHub issues via the standard GitHub UI as well as EcoSML.

 [AUTHORIZE](#)

My Organizations

[UW EnSpec](#)

My Packages

[Test_PLS_Chemistry_Physiology_2018](#) - PLS coefficients and application code for predicting chemical and physiological traits in leaves.

 Home Search Create Package My Account Report Issue About Logout



Create Package

Getting Started

Basic Information

Select Repository Type

You have the option to create a EcoSML Managed Repository or if you already have a GitHub repository you can create a Registered Repository.

EcoSML Managed Repository

Recommended for users who are new to source code management ([git](#)) or don't want to manage their own repository. Managed repositories are easy to create and provide a simple interface for updating code. The repository will be hosted in the [EcoSML GitHub organization](#).

Registered Repository

Recommended for users who: have experience with git, want to host the repository in their own GitHub organization or already have a GitHub repository. You will provide EcoSML the url to your existing GitHub repository on the next screen.

NEXT →



Create Package

[Getting Started](#)[Basic Information](#)

Package Name

Package Overview

One sentence summary of package

Overview (Short Description)

Organization

The [EcoSML](#) organization this package belongs to, all members will have access. If you need to create or edit an organization, do so via [EcoSML organization management](#).

Language

Which programming language is this package written in?

Code Type

Package

The code is a distributable software package meant to be installed via the languages package management system such as [EYman/PE](#), [R/CRAN](#), [Node/NPM](#), etc. Currently [Python](#) and [R](#) packages will auto-build sample native package files for installation from GitHub.

Standalone Application

The code is a final product intended for use by end users.

+ CREATE

Package Created!



- 1 Click below to download the package files and get started!
[Download package files](#)
- 2 Locally add / update your model code, resources and papers.
- 3 Use the **Files** tab to sync changes back to EcoSML.
- 4 Use the **Details** tab to add model documentation, keywords and themes.
- 5 Use the **Releases** tab to create a versioned release of the model allowing the package show in search.

CLOSE

UW EnSpec

Language

Package Created!



- 1 Click below to download the package files and get started!
[Download package files](#)
- 2 Locally add / update your model code, resources and papers.
- 3 Use the **Files** tab to sync changes back to EcoSML.
- 4 Use the **Details** tab to add model documentation, keywords and themes.
- 5 Use the **Releases** tab to create a versioned release of the model allowing the package show in search.

CLOSE

UW EnSpec

Language

Wagner-Demo

EcoSML Managed Repository

⚠ Warning, your package will not show up in search until you create a release or create one.

Basic Information

Details

Files

README

Please provide documentation on the model and how it should be used. We encourage Markdown. Markdown is supported and highly encouraged. Markdown syntax that can be used to make your documentation easier to follow and read. [help](#). [Supports code preview highlighting at was](#).

<> EDIT  PREVIEW

Keywords

Faceted keywords for package discovery

Keywords, Comma Separate

Theme

Package theming information

ADD

Include all information that a user will need to use the model.

Wagner-Demo

EcoSML Managed Repository

 Warning, your package will not show up in search until you create a release. Click the [Release](#) tab to create one.

Basic Information

Details

Files

Releases

README

Please provide documentation on the model and how it should be used. Code snippets are encouraged. Markdown is supported and highly encouraged. Markdown is simple markup syntax that can be used to make your documentation easier to follow and read. [Markdown help](#). [Supports code syntax highlighting as well.](#)

Be thorough when choosing key words. It will help users find your model.

Keywords

Faceted keywords for package discovery

Keywords, Comma Separate

Theme

Package theming information

ADD

Wagner-Demo

EcoSML Managed Repository

⚠ Warning, your package will not show up in search until you create a release. Click the **Release** tab to create one.

Basic Information

Details

Files

Releases

README

Please provide documentation on the model and how it should be used. Code snippets are encouraged. Markdown is supported and highly encouraged. Markdown is simple markup syntax that can be used to make your documentation easier to follow and read. [Markdown help](#). [Supports code syntax highlighting as well.](#)

⏪ EDIT

👁 PREVIEW

Themes and categories will further help users find the right models.

Theme

Package theme information

ADD

Wagner-Demo

EcoSML Managed Repository

Warning: your package will not show up in search until you create a release. Click the Release tab to create one.

[Basic Information](#) [Details](#) [Files](#) [Releases](#)

README

Please provide documentation on the model and how it should be used. Code snippets are encouraged. Markdown is supported and highly encouraged. Markdown is simple markup syntax that can be used to make your documentation easier to follow and read. [Markdown](#) [help](#), [Supports code syntax highlighting as well.](#)

[EDIT](#) [PREVIEW](#)

Description of model package

Usage instructions

You have unsaved changes

COMMIT CHANGES

Commit message:

Keywords

Keywords are used for package discovery

Keywords: Comma Separate

 physiology chemistry nutrients structure

Theme

Package theming information

Category	Family	Subfamily
chemistry	nitrogen	
chemistry	carbon	
physiology	fiber	
physiology	lignin	% ADL
physiology	LMA	

ADD

You have unsaved changes

COMMIT CHANGES

Commit message:

Changes will not be saved until you hit "COMMIT CHANGES"

Wagner-Demo

EcoSML Managed Repository

 Warning, your package will not show up in search until you create a release. Click the **Release** tab to create one.

Basic Information

Details

Files

Releases

 [Download Package Files](#)

Sync Changes

Upload root package directory to sync all changes to repository.

CHOOSE FOLDER

Drag and drop root directory here



/

LICENSE

1.04KB

README.md

98B


ecosml-metadata.json

253B

If you need to make changes to the package that do not require a change in version.

Wagner-Demo

EcoSML Managed Repository

 Warning, your package will not show up in search until you create a release. Click the **Release** tab to create one.

Basic Information

Details

Files

Releases

 [Download Package Files](#)

Sync Changes

Upload root package directory to sync all changes to repository.

CHOOSE FOLDER

Drag and drop root directory here



LICENSE
README.md
ecosml-metadata.json

1.04KB
98B
253B

If you need to make changes to the package that do not require a change in version.

Changes



Please review changes below to ensure appropriate file modifications are being made to your package.

/test_spectra.csv	Added
/output/sample_results.csv	Added
/coefficients/PLSR_raw_coef_Nitrogen.csv	Added
/coefficients/PLSR_raw_coef_Lignin.csv	Added
/coefficients/PLSR_raw_coef_LMA_gm2_V2.csv	Added
/coefficients/PLSR_raw_coef_Fiber.csv	Added
/coefficients/PLSR_raw_coef_Chlorophyllab_mass.csv	Added
/coefficients/PLSR_raw_coef_Chlorophyllab_area.csv	Added
/coefficients/PLSR_raw_coef_Cellulose.csv	Added
/coefficients/PLSR_raw_coef_Carotenoid_mass.csv	Added
/coefficients/PLSR_raw_coef_Carotenoid_area.csv	Added
/coefficients/PLSR_raw_coef_Carbon.csv	Added
/apply_PLSR_coefs.py	Added
/PLSR_model_evaluation_report.xlsx	Added

CANCEL

SAVE CHANGES

LICENSE
README.md 98B
ecosml-metadata.json 253B

Changes



Please review changes below to ensure appropriate file modifications are being made to your package.

/test_spectra.csv	Added
/output/sample_results.csv	Added
/coefficients/PLSR_raw_coef_Nitrogen.csv	Added
/coefficients/PLSR_raw_coef_Lignin.csv	Added
/coefficients/PLSR_raw_coef_LMA_gm2_V2.csv	Added
/coefficients/PLSR_raw_coef_Fiber.csv	Added
/coefficients/PLSR_raw_coef_Chlorophyllab_mass.csv	Added
/coefficients/PLSR_raw_coef_Chlorophyllab_area.csv	Added
/coefficients/PLSR_raw_coef_Cellulose.csv	Added
/coefficients/PLSR_raw_coef_Carotenoid_mass.csv	Added
/coefficients/PLSR_raw_coef_Carotenoid_area.csv	Added
/coefficients/PLSR_raw_coef_Carbon.csv	Added
/apply_PLSR_coeffs.py	Added
/PLSR_model_evaluation_report.xlsx	Added


CANCEL

SAVE CHANGES

README.md 98B
ecosml-metadata.json 253B

Wagner-Demo

EcoSML Managed Repository

 Warning, your package will not show up in search until you create a release. Click the **Release** tab to create one.

Basic Information

Details

Files

Releases

Releases

[+ CREATE](#)

[View on GitHub](#)

Click create above to **create** the packages first release!