

Introduction to the eLTER SO Cost application

eLTER Site and eLTER Platform Costs
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University of Helsinki

Filling a
critical gap
for top-class
science at the
continental
scale



eLTER SO Costs



□ What it is?

- Tool (web application)
 - Help site managers to assess the costs of upgrading and operating an eLTER site



eLTER SO Costs



□ Where and how to use this tool?

- Accessible by any web browser
- Requires previous knowledge on eLTER materials
 - Links on the FAQ
- Guide provided on the app itself + webinar



eLTER SO Costs



□ Accuracy of the estimations

- Can change due to decisions of the eLTER community
- Does not include the human labor cost
- Not expected to be 100% accurate, but rather to give an estimation of the costs
 - Acceptable error margin of approximately $\pm 30\%$



eLTER SO Costs



□ Web application structure

- Three tabs
 - Info (information and guidance)
 - Set up (selecting the conditions of your site)
 - SO costs (your results)



Info tab

Welcome

This interactive tool is designed to assist researchers and site managers associated with the [Integrated European Long-Term Ecosystem, critical zone and socio-ecological research \(eLTER\)](#) network in defining [Standard Observations \(SOs\)](#) and calculating the associated costs to implement them at their sites. The outputs of this tool are subjected to changes, as modifications in the inputs might occur in the future based on the agreement of eLTER consortium. Additionally, the values presented here might differ slightly from precise calculations of the costs due to different reasons (e.g. differences in management among institutions, different costs associated with the sampling, maintenance, lab analysis and etc.).

Features

- **Selecting parameters**
 - Begin by choosing the site category, habitat and focus spheres of your eLTER site on the **Set up** tab to tailor the SOs list to your specific needs.
- **Customizing your SO list**
 - Uncheck any SO that your site has already covered by other means on the *side panel* of the **Set up** tab.
- **Costs calculations**
 - Navigate to the **SO costs** tab to view a detailed breakdown of annual costs for running the selected SOs at your eLTER site. This includes purchase, maintenance, sampling, lab analysis costs, and the total human labor involved.
- **Exporting the costs calculations**
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- **Informative visualizations**
 - Explore various plots providing insights into the number of SOs by sphere, annual cost breakdown by type, labor effort by sphere, and more. These visualizations aid in understanding the distribution and financial implications of the SOs required for your site.

FAQ

Click [here](#) to access the Frequently Asked Questions.

Accessing the source code

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Disclaimer

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introduction



Info

Set up

SO costs

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 **instructions**

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Photo: Juho Aalto.

eLTER_SO-Costs-FAQ_\$LINK

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Search Menus

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FAQs for eLTER SO Costs application

What is the purpose of this application?

This application enables users to estimate the operational costs associated with upgrading an eLTER (Long-Term Ecosystem Research) Site. It is designed for eLTER Site Coordinators and National Coordinators to make informed budgetary decisions.

Who should use this application?

The target audience includes eLTER SPCs (Site and Platform Coordinators) and National Coordinators within the eLTER Research Infrastructure (RI).

How do I use the application?

Navigate to the set up tab and select your site's eLTER category, habitat, and, for category 1 sites, two focus spheres. You can exclude specific Standard Observations (SO) if they are covered by other means.

Is my data stored or shared?

No user data is stored. If you wish to keep a copy of your results, there is an option to download them. You need to download the data from the SO Costs application to include it in the Cost survey.


What are the technical requirements for using the application?

The application is accessible via any updated web browser, with no additional requirements.

What knowledge is required to use the app effectively?

Users should have a basic understanding of eLTER RI's content and logic to use the application

>



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Photo: Juho Aalto.

Open information on how the tool was built

<> Code

Issues

Pull requests

Actions

Projects

Security

Insights

Settings

eLTER-SO-costs-App

Public

Unpin

Unwatch 1

Fork 0

Star 0

main

1 Branch

0 Tags

Go to file

Add file

Code

About

Souza Allan

Removing duplicated text on the readme.

5872802 · 6 minutes ago

54 Commits

.github

Moving files to different folder.

25 minutes ago

data

Renaming the input tables and ammending the code.

2 days ago

renv

Using renv package to increase reproducibility of the App.

3 months ago

www

renaming the images and ammending the code.

2 days ago

.Rprofile

Using renv package to increase reproducibility of the App.

3 months ago

.gitignore

Adding the code as it was in the latest version developed...

3 months ago

LICENSE

Initial commit

3 months ago

README.html

Removing duplicated text on the readme.

6 minutes ago

README.md

Removing duplicated text on the readme.

6 minutes ago

app.R

Removing the Site Name text from the box in SO costs ta...

54 minutes ago

eLTER-SO-costs-App.Rproj

Adding the code as it was in the latest version developed...

3 months ago

renv.lock

Adding one more package in the app and updating the r...


2 days ago

README

Code of conduct

CC0-1.0 license

eLTER SO Costs web application



Quick Links

Authors

CRedit author statement

This is a repository that hosts the tool to calculate the costs of standard observations to upgrade and operate eLTER sites.

r

shiny

webapp

environmental-monitoring

research-infrastructure

eliter

environmentalscience

Readme

CC0-1.0 license

Code of conduct

Activity

0 stars

1 watching

0 forks

Releases

No releases published

Create a new release

Packages


No packages published

Publish your first package

Languages

R

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The eLTER logo features a stylized DNA double helix on the left, composed of blue, orange, and green segments. To the right of the helix, the word "eLTER" is written in a bold, sans-serif font, with "e" in orange and "LTER" in blue. The word "SO COSTS" is written in a smaller, orange, sans-serif font directly below "eLTER".

Set up tab

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Info 

Set up 

SO costs 

Select parameters

eLTER site category

 1

 2


Site habitat


Select 

Focus sphere #1

Geosphere 

Focus sphere #2

Geosphere 

 Download

List of the standard observations needed in your site

Select parameters

eLTER site category

☒ 1 ☐ 2

Site habitat


Select ▼

Focus sphere #1

Geosphere ▼

Focus sphere #2

Geosphere ▼

 Download

List of the standard observations needed in your site

← Selecting the eLTER site category

Select parameters

eLTER site category

1

2

Site habitat

Select

coastal transitional waters including coastal littoral zones

forests and other wooded land

grasslands and lands dominated by forbs mosses or lichens

heathlands shrub and tundra

inland surface running waters

inland surface standing waters

sparsely vegetated habitats and deserts

vegetated man-made habitats agricultural horticultural domestic

Choose
the
habitat
of your
eLTER
site

selecting the site habitat

List of the standard observations needed in your site

Select parameters

eLTER site category

1 2

Site habitat

forests and other wooded land

Focus sphere #1 **selecting the focus spheres**

Hydrosphere

Focus sphere #2

Biosphere

Below, uncheck the SO that are not needed for your site (i.e. cost already covered by another source)

Meteorological data (SOATM_027), Radiation (SOATM_028), Ground heat flux (SOATM_098)

Download

List of the standard observations needed in your site

Show 100 entries

Search:

Sphere	SO code	Method type	Standard Observation
Atmosphere	SOATM_027	basic	Meteorological data
Atmosphere	SOATM_028	basic	Radiation
Atmosphere	SOATM_098	basic	Ground heat flux
Atmosphere	SOATM_103	basic	Atmospheric deposition in precipitation
Atmosphere	SOATM_108	basic	Dry deposition of N-components
Atmosphere	SOATM_176	basic	CO2 flux and concentration, Latent heat flux, Sensible heat flux - Eddy Covariance
Atmosphere	SOBIO_015	basic	Vegetation phenology and Leaf Area Index – European scale
Atmosphere	SOBIO_016	basic	Vegetation phenology – site scale
Atmosphere	SOBIO_023	basic	Vegetation aboveground biomass - forest (site scale)
Atmosphere	SOBIO_025	basic	Leaf area index - forests (site scale)
Atmosphere	SOBIO_090	basic	Gross primary production
Atmosphere	SOBIO_091	basic	Transpiration (Plants)
Atmosphere	SOBIO_092	basic	Aboveground litterfall - forests
Atmosphere	SOBIO_093	basic	Belowground biomass - terrestrial
Atmosphere	SOBIO_095	basic	Leaf C, N, K, P, Ca, Mg, Mn content - terrestrial
Atmosphere	SOBIO_140	basic	Vegetation structure - site scale
Atmosphere	SOBIO_177	basic	Tree growth

Note1: Focus spheres have to be selected only if the site is Category 1

Note2: Sociosphere is not included in the application.

Select parameters

eLTER site category



Site habitat

forests and other wooded land

Focus sphere #1

Hydrosphere

Focus sphere #2

Biosphere

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Atmosphere	SOBIO_015	basic	Vegetation phenology and Leaf Area Index – European scale
Atmosphere	SOBIO_016	basic	Vegetation phenology – site scale
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option to deselect specific SOs

Select All

Deselect All

Meteorological data (SOATM_027)

Radiation (SOATM_028)

Ground heat flux (SOATM_098)

Atmospheric deposition in precipitation (SOATM_103)

Dry deposition of N-components (SOATM_108)

Eddy covariance (SOATM_176)

Phenological traits (Remote Sensing) (SOBIO_015)

Phenological traits (on-site) (SOBIO_016)

Forest - Aboveground biomass (SOBIO_023)

Forest - LAI (SOBIO_025)

Gross primary production (SOBIO_090)

Transpiration (SOBIO_091)

Forests - Litterfall (SOBIO_092)

Belowground biomass (SOBIO_093)

Leaf - Elements (SOBIO_095)

Vegetation - LiDAR (SOBIO_140)

Tree growth (SOBIO_177)

Flying - insects (SOBIO_014)

Vegetation - composition (SOBIO_017)

Atmospheric deposition (SOBIO_048)

Meteorological data (SOATM_027), Radiation (SOATM_028), Ground heat flux (SOATM_098)

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Atmosphere	SOBIO_177	basic	Tree growth
Biosphere	SOBIO_014	prime	Flying insects
Biosphere	SOBIO_017	prime	Vegetation composition (mainly species level+abundance)
Biosphere	SOBIO_018	prime	Birds, bats, frogs, insects using acoustic recording

Download

automatically updating the table

Select parameters

eLTER site category

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Site habitat

Focus sphere #1

Focus sphere #2

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minimizing the deselection box

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Biosphere	SOBIO_017	prime	Vegetation composition (mainly species level+abundance)
Biosphere	SOBIO_018	prime	Birds, bats, frogs, insects using acoustic recording

Select parameters

eLTER site category

1

2

Site habitat

forests and other wooded land

Focus sphere #1

Hydrosphere

Focus sphere #2

Biosphere

Below, uncheck the SO that are not needed for your site (i.e. cost already covered by another source)

Meteorological data (SOATM_027), Radiation (SOATM_028), Ground heat flux (SOATM_029)

Download

List of the standard observations needed in your site

Show 100 entries

Search:

Sphere	SO code	Method type	Standard Observation
Atmosphere	SOATM_027	basic	Meteorological data
Atmosphere	SOATM_028	basic	Radiation
Atmosphere	SOATM_098	basic	Ground heat flux
Atmosphere	SOATM_103	basic	Atmospheric deposition in precipitation
Atmosphere	SOATM_176	basic	CO2 flux and concentration, Latent heat flux, Sensible heat flux - Eddy Covariance
Atmosphere	SOBIO_015	basic	Vegetation phenology and Leaf Area Index – European scale
Atmosphere	SOBIO_016	basic	Vegetation phenology – site scale
Atmosphere	SOBIO_023	basic	Vegetation aboveground biomass - forest (site scale)
Atmosphere	SOBIO_025	basic	Leaf area index - forests (site scale)
Atmosphere	SOBIO_090	basic	Gross primary production
Atmosphere	SOBIO_092	basic	Aboveground litterfall - forests
Atmosphere	SOBIO_093	basic	Belowground biomass - terrestrial
Atmosphere	SOBIO_095	basic	Leaf C, N, K, P, Ca, Mg, Mn content - terrestrial
Atmosphere	SOBIO_177	basic	Tree growth
Biosphere	SOBIO_014	prime	Flying insects
Biosphere	SOBIO_017	prime	Vegetation composition (mainly species level+abundance)
Biosphere	SOBIO_018	prime	Birds, bats, frogs, insects using acoustic recording

Downloading the table
containing the list of SOs used
for the calculations

SO costs tab



Parameters

Selected

eLTER site category: 1

Site habitat: forests and other wooded land

Focus sphere #1: Hydrosphere

Focus sphere #2: Biosphere



Costs

Estimated

Annual cost: €43,423.00

Implementation: €64,610.00

Labor (person days per year): 51.15

Note: The labor costs are not included in the costs. You must calculate the labor costs based on the labor needed at your site (indicated above) and the salary structure in your institution and/or country. Add this number to the estimated costs presented above to have the final cost for your eLTER site.



Upgrading and operating an eLTER site

Detailed Costs

This table shows the costs (in €) of the standard observations (SOs) needed to upgrade and operate the eLTER site with the conditions selected at the **Set up** tab. The total cost is calculated by summing the different costs types (purchase, maintenance, sampling and lab analysis). Additionally, the table shows the human labor needed to operate the eLTER site, expressed as number of days needed to perform all tasks related to the specific SOs per year.

Note #1: This table displays only the SOs which have costs associated to it (economic or human labor).

Note #2: The orange bars displayed within each column visually represent the proportion of each SO's cost relative to the maximum cost found in that column. This graphical representation provides an intuitive understanding of how each SO's cost compares to the highest cost observed for that particular cost variable, allowing for quick visual assessment of cost distribution across SOs.

Show 100 ▾ entries

Search:

SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)
Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1



Parameters

Selected

eLTER site category: 1

Site habitat: forests and other wooded land

Focus sphere #1: Hydrosphere

Focus sphere #2: Biosphere



Costs

Estimated

Annual cost: €43,423.00

Implementation: €64,610.00

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Show entries

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Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1



Parameters

Selected

eLTER site category: 1

Site habitat: forests and other wooded land

Focus sphere #1: Hydrosphere

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Show 100 ▾ entries

Search:

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Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1



Upgrading and operating an eLTER site

Detailed Costs

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Show entries

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Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
Vegetation - composition (SOBIO_017)	prime	€60.00	€18.00	€0.00	€0.00	€0.00	€18.00	1.15
Soil chemical and physical properties (SOGEO_003)	basic	€0.00	€0.00	€0.00	€0.00	€20.00	€20.00	0.2
Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Snow (SOHYD_012)	prime	€100.00	€50.00	€100.00	€0.00	€0.00	€150.00	0.6
eDNA Water (SOBIO_021)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
eDNA soil (SOBIO_022)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
Acoustic recording (SOBIO_018)	prime	€700.00	€233.00	€0.00	€0.00	€0.00	€233.00	1.2
Radiation (SOATM_028)	basic	€1,000.00	€143.00	€100.00	€0.00	€0.00	€243.00	0.22
Pollen and spores (SOBIO_019)	prime	€4,000.00	€400.00	€0.00	€0.00	€0.00	€400.00	1.2
Running water level (SOHYD_010)	prime	€1,000.00	€200.00	€200.00	€0.00	€0.00	€400.00	4.5
Forests - Litterfall (SOBIO_092)	basic	€500.00	€100.00	€50.00	€0.00	€600.00	€750.00	1.4
Meteorological data (SOATM_027)	basic	€7,000.00	€1,000.00	€1,000.00	€0.00	€0.00	€2,000.00	3.5
Flying - insects (SOBIO_014)	prime	€500.00	€500.00	€0.00	€150.00	€1,743.00	€2,393.00	0.95

SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)
Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
Vegetation - composition (SOBIO_017)	prime	€60.00	€18.00	€0.00	€0.00	€0.00	€18.00	1.15
Soil chemical and physical properties (SOGEO_003)	basic	€0.00	€0.00	€0.00	€0.00	€20.00	€20.00	0.2
Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Snow (SOHYD_012)	prime	€100.00	€50.00	€100.00	€0.00	€0.00	€150.00	0.6
eDNA Water (SOBIO_021)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
eDNA soil (SOBIO_022)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
Acoustic recording (SOBIO_018)	prime	€700.00	€233.00	€0.00	€0.00	€0.00	€233.00	1.2
Radiation (SOATM_028)	basic	€1,000.00	€143.00	€100.00	€0.00	€0.00	€243.00	0.22
Pollen and spores (SOBIO_019)	prime	€4,000.00	€400.00	€0.00	€0.00	€0.00	€400.00	1.2
Running water level (SOHYD_010)	prime	€1,000.00	€200.00	€200.00	€0.00	€0.00	€400.00	4.5
Forests - Litterfall (SOBIO_092)	basic	€500.00	€100.00	€50.00	€0.00	€600.00	€750.00	1.4
Meteorological data (SOATM_027)	basic	€7,000.00	€1,000.00	€1,000.00	€0.00	€0.00	€2,000.00	3.5
Flying - insects (SOBIO_014)	prime	€500.00	€500.00	€0.00	€150.00	€1,743.00	€2,393.00	0.95
Groundwater - Nutrients (SOHYD_064)	prime	€0.00	€0.00	€100.00	€0.00	€4,044.00	€4,144.00	3
Soil water content/temperature (SOHYD_168)	prime	€22,000.00	€2,200.00	€2,000.00	€0.00	€0.00	€4,200.00	5.5
Groundwater - Major ion concentrations (SOHYD_062)	prime	€0.00	€0.00	€100.00	€0.00	€5,870.00	€5,970.00	3
Atmospheric deposition in precipitation (SOATM_103)	basic	€250.00	€75.00	€50.00	€0.00	€7,827.00	€7,952.00	2.4
Groundwater - chemical/physical properties (SOHYD_006)	prime	€27,500.00	€13,750.00	€200.00	€0.00	€0.00	€13,950.00	9.5
Total		€64,610.00	€18,669.00	€4,100.00	€550.00	€20,104.00	423.00	51.15

Showing 1 to 24 of 24 entries

Site Name of as displayed in [deims.org](#):

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visual aid to quickly see which SO is costing more in each of the columns

SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)
Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
Vegetation - composition (SOBIO_017)	prime	€60.00	€18.00	€0.00	€0.00	€0.00	€18.00	1.15
Soil chemical and physical properties (SOGEO_003)	basic	€0.00	€0.00	€0.00	€0.00	€20.00	€20.00	0.2
Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Snow (SOHYD_012)	prime	€100.00	€50.00	€100.00	€0.00	€0.00	€150.00	0.6
eDNA Water (SOBIO_021)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
eDNA soil (SOBIO_022)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
Acoustic recording (SOBIO_018)	prime	€700.00	€233.00	€0.00	€0.00	€0.00	€233.00	1.2
Radiation (SOATM_028)	basic	€1,000.00	€143.00	€100.00	€0.00	€0.00	€243.00	0.22
Pollen and spores (SOBIO_019)	prime	€4,000.00	€400.00	€0.00	€0.00	€0.00	€400.00	1.2
Running water level (SOHYD_010)	prime	€1,000.00	€200.00	€200.00	€0.00	€0.00	€400.00	4.5
Forests - Litterfall (SOBIO_092)	basic	€500.00	€100.00	€50.00	€0.00	€600.00	€750.00	1.4
Meteorological data (SOATM_027)	basic	€7,000.00	€1,000.00	€1,000.00	€0.00	€0.00	€2,000.00	3.5
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Groundwater - Nutrients (SOHYD_064)	prime	€0.00	€0.00	€100.00	€0.00	€4,044.00	€4,144.00	3
Soil water content/temperature (SOHYD_168)	prime	€22,000.00	€2,200.00	€2,000.00	€0.00	€0.00	€4,200.00	5.5
Groundwater - Major ion concentrations (SOHYD_062)	prime	€0.00	€0.00	€100.00	€0.00	€5,870.00	€5,970.00	3
Atmospheric deposition in precipitation (SOATM_103)	basic	€250.00	€75.00	€50.00	€0.00	€7,827.00	€7,952.00	2.4
Groundwater - chemical/physical properties (SOHYD_006)	prime	€27,500.00	€13,750.00	€200.00	€0.00	€0.00	€13,950.00	9.5
Total		€64,610.00	€18,669.00	€4,100.00	€550.00	€20,104.00	€43,423.00	51.15

Showing 1 to 24 of 24 entries

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Site Name of as displayed in [deims.org](#):

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Total = sum of costs of each column above

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Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
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Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
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Latest Updates

-  Lautaret-Roche-Noire - France
2024-03-28 16:55
-  LTSER platform Lautaret-Oisans / Zone Atelier
Alpes - France
2024-03-28 16:55
-  LTER Zöbelboden, Austria, Soil water chemistry
2020
2024-03-28 11:57
-  LTER Zöbelboden, Austria, Throughfall chemistry,
2022
2024-03-28 11:16
-  LTER Zöbelboden, Austria, Throughfall chemistry,
2021
2024-03-28 11:12
-  LTER Zöbelboden, Austria, Throughfall chemistry,
2020
2024-03-28 10:47
-  LTER Zöbelboden, Austria, Precipitation chemistry,
2022
2024-03-28 10:25

Welcome to DEIMS-SDR

DEIMS-SDR (Dynamic Ecological Information Management System - Site and dataset registry) is an information management system powered by eLTER. It allows you to discover long-term ecosystem research sites around the globe, along with the data gathered at those sites and the people and networks associated with them. DEIMS-SDR describes a wide range of sites, providing a wealth of information, including each site's location, ecosystems, facilities, parameters measured and research themes. It is also possible to access a growing number of datasets and data products associated with the sites.

DEIMS-SDR belongs to the service components of the emerging eLTER Research Infrastructure. While being used as eLTER site registry it also offers services to European peers and the global user communities.

- [Read more about DEIMS](#)
- [Explore the European LTER](#)

Resources

-  Sites
-  Datasets
-  Sensors
-  Activities

Quick Start

- Do you need any help? [Read our tutorials](#)
- Do you want your site or research to be on DEIMS-SDR?
- Is something not working or do you have any change requests? [Contact us](#)

 **ProTip!** Use the [DEIMS.ID](#) to reference sites in papers, reports or anywhere else.

Hyytiälä SMEAR II LTER - Finland

DEIMS.ID: <https://deims.org/663dac80-211d-4c19-a356-04ee0da0f0eb>

Basic Information

Site Name: Hyytiälä SMEAR II LTER

Short name: HYY-SMR

Country: Finland

Web Address: [Hyytiälä Forestry Field station](#)

[Hyytiälä SMEAR II site](#)

[INAR homepage](#)

[SMEAR data portal](#)

Operating Organisation: SMEAR II, Department of Physics, University of Helsinki

Site Manager: Jaana Bäck

[Pauliina Schiestl-Aalto](#)

[Kira Ryhti](#)

Funding Agency: University of Helsinki

Site Description: The Hyytiälä SMEAR II site (Station for Measuring Ecosystem-Atmosphere Relations) is situated in the Hyytiälä Forestry Field Station of the University of Helsinki. The site consists is a managed, 60-yr old Scots pine forest stand. The main idea of SMEAR type infrastructures is continuous, comprehensive measurements of fluxes, storages and concentrations in the land ecosystem-atmosphere continuum. The forest measurements are operated continuously since 1996, and include e.g. leaf, stand and ecosystem scale measurements of greenhouse gases, volatile organic compounds, pollutants (e.g. O₃, SO₂, NO_x) and aerosols, In addition to full suite of meteorological measurements. The biogeochemical cycles and vegetation-soil-atmosphere ...

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Last modified: 2024-03-25 07:03:37



General Characteristics and Status

Site Status: Operational

Year Established: 1910

Observed properties

ecosystem parameter										atmospheric parameter										soil parameter									
above ground biomass	canopy height	deciduous volume	ground water level	leaf area	microbial density	microbial respiration	microbial biomass	plant cover	plant density	air humidity	air specific humidity	air temperature	air pressure	air density	air velocity	air turbulence	air radiation	air radiation	air radiation	air radiation	soil moisture	soil gas flux	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential
above ground biomass	canopy height	deciduous volume	ground water level	leaf area	microbial density	microbial respiration	microbial biomass	plant cover	plant density	air humidity	air specific humidity	air temperature	air pressure	air density	air velocity	air turbulence	air radiation	air radiation	air radiation	air radiation	soil moisture	soil gas flux	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential	soil moisture potential

Photos



SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)
Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
Vegetation - composition (SOBIO_017)	prime	€60.00	€18.00	€0.00	€0.00	€0.00	€18.00	1.15
Soil chemical and physical properties (SOGEO_003)	basic	€0.00	€0.00	€0.00	€0.00	€20.00	€20.00	0.2
Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Snow (SOHYD_012)	prime	€100.00	€50.00	€100.00	€0.00	€0.00	€150.00	0.6
eDNA Water (SOBIO_021)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
eDNA soil (SOBIO_022)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
Acoustic recording (SOBIO_018)	prime	€700.00	€233.00	€0.00	€0.00	€0.00	€233.00	1.2
Radiation (SOATM_028)	basic	€1,000.00	€143.00	€100.00	€0.00	€0.00	€243.00	0.22
Pollen and spores (SOBIO_019)	prime	€4,000.00	€400.00	€0.00	€0.00	€0.00	€400.00	1.2
Running water level (SOHYD_010)	prime	€1,000.00	€200.00	€200.00	€0.00	€0.00	€400.00	4.5
Forests - Litterfall (SOBIO_092)	basic	€500.00	€100.00	€50.00	€0.00	€600.00	€750.00	1.4
Meteorological data (SOATM_027)	basic	€7,000.00	€1,000.00	€1,000.00	€0.00	€0.00	€2,000.00	3.5
Flying - insects (SOBIO_014)	prime	€500.00	€500.00	€0.00	€150.00	€1,743.00	€2,393.00	0.95
Groundwater - Nutrients (SOHYD_064)	prime	€0.00	€0.00	€100.00	€0.00	€4,044.00	€4,144.00	3
Soil water content/temperature (SOHYD_168)	prime	€22,000.00	€2,200.00	€2,000.00	€0.00	€0.00	€4,200.00	5.5
Groundwater - Major ion concentrations (SOHYD_062)	prime	€0.00	€0.00	€100.00	€0.00	€5,870.00	€5,970.00	3
Atmospheric deposition in precipitation (SOATM_103)	basic	€250.00	€75.00	€50.00	€0.00	€7,827.00	€7,952.00	2.4
Groundwater - chemical/physical properties (SOHYD_006)	prime	€27,500.00	€13,750.00	€200.00	€0.00	€0.00	€13,950.00	9.5
Total		€64,610.00	€18,669.00	€4,100.00	€550.00	€20,104.00	€43,423.00	51.15

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SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)
Forest - Aboveground biomass (SOBIO_023)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	0.83
Phenological traits (Remote Sensing) (SOBIO_015)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil inventory (SOGEO_001)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	1
Soil infiltration (SOGEO_048)	basic	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	2
Vegetation - composition (SOBIO_017)	prime	€60.00	€18.00	€0.00	€0.00	€0.00	€18.00	1.15
Soil chemical and physical properties (SOGEO_003)	basic	€0.00	€0.00	€0.00	€0.00	€20.00	€20.00	0.2
Surface water - Stable isotopes (SOHYD_058)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Groundwater - Stable Isotopes (SOHYD_059)	prime	€0.00	€0.00	€100.00	€0.00	€0.00	€100.00	3
Snow (SOHYD_012)	prime	€100.00	€50.00	€100.00	€0.00	€0.00	€150.00	0.6
eDNA Water (SOBIO_021)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
eDNA soil (SOBIO_022)	prime	€0.00	€0.00	€0.00	€200.00	€0.00	€200.00	1
Acoustic recording (SOBIO_018)	prime	€700.00	€233.00	€0.00	€0.00	€0.00	€233.00	1.2
Radiation (SOATM_028)	basic	€1,000.00	€143.00	€100.00	€0.00	€0.00	€243.00	0.22
Pollen and spores (SOBIO_019)	prime	€4,000.00	€400.00	€0.00	€0.00	€0.00	€400.00	1.2
Running water level (SOHYD_010)	prime	€1,000.00	€200.00	€200.00	€0.00	€0.00	€400.00	4.5
Forests - Litterfall (SOBIO_092)	basic	€500.00	€100.00	€50.00	€0.00	€600.00	€750.00	1.4
Meteorological data (SOATM_027)	basic	€7,000.00	€1,000.00	€1,000.00	€0.00	€0.00	€2,000.00	3.5
Flying - insects (SOBIO_014)	prime	€500.00	€500.00	€0.00	€150.00	€1,743.00	€2,393.00	0.95
Groundwater - Nutrients (SOHYD_064)	prime	€0.00	€0.00	€100.00	€0.00	€4,044.00	€4,144.00	3
Soil water content/temperature (SOHYD_168)	prime	€22,000.00	€2,200.00	€2,000.00	€0.00	€0.00	€4,200.00	5.5
Groundwater - Major ion concentrations (SOHYD_062)	prime	€0.00	€0.00	€100.00	€0.00	€5,870.00	€5,970.00	3
Atmospheric deposition in precipitation (SOATM_103)	basic	€250.00	€75.00	€50.00	€0.00	€7,827.00	€7,952.00	2.4
Groundwater - chemical/physical properties (SOHYD_006)	prime	€27,500.00	€13,750.00	€200.00	€0.00	€0.00	€13,950.00	9.5
Total		€64,610.00	€18,669.00	€4,100.00	€550.00	€20,104.00	€43,423.00	51.15

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A1 Parameter

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Parameter	Selection																			
2	eLTER site category	1																			
3	Site habitat	forests and other wooded land																			
4	Focus sphere #1	Hydrosphere																			
5	Focus sphere #2	Biosphere																			
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siteCharacteristics deselectedSOs costs +



displaying the options selected at the site characteristics



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A1 code

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	code	sphere	SO short name																
2	SOATM_108	Atmosphere	Dry deposition of N-components (SOATM_108)																
3	SOBIO_091	Atmosphere	Transpiration (SOBIO_091)																
4	SOBIO_140	Atmosphere	Vegetation - LiDAR (SOBIO_140)																
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A1 SO short name

	A	B	C	D	E	F	G	H	I	J
1	SO short name	Method type	Implementation	Replacement costs of equipment	Maintenance (per year)	Sampling (per year)	Lab analysis (per year)	Total cost (per year)	Person days (per year)	
2	Forest - Aboveground biomass (SOBIO_023)	basic	0	0	0	0	0	0	0.83	
3	Phenological traits (Remote Sensing) (SOBIO_015)	basic	0	0	0	0	0	0	1	
4	Soil inventory (SOGEO_001)	basic	0	0	0	0	0	0	1	
5	Soil infiltration (SOGEO_048)	basic	0	0	0	0	0	0	2	
6	Vegetation - composition (SOBIO_017)	prime	60	18	0	0	0	18	1.15	
7	Soil chemical and physical properties (SOGEO_003)	basic	0	0	0	0	20	20	0.2	
8	Surface water - Stable isotopes (SOHYD_058)	prime	0	0	100	0	0	100	3	
9	Groundwater - Stable Isotopes (SOHYD_059)	prime	0	0	100	0	0	100	3	
10	Snow (SOHYD_012)	prime	100	50	100	0	0	150	0.6	
11	eDNA Water (SOBIO_021)	prime	0	0	0	200	0	200	1	
12	eDNA soil (SOBIO_022)	prime	0	0	0	200	0	200	1	
13	Acoustic recording (SOBIO_018)	prime	700	233	0	0	0	233	1.2	
14	Radiation (SOATM_028)	basic	1000	143	100	0	0	243	0.22	
15	Pollen and spores (SOBIO_019)	prime	4000	400	0	0	0	400	1.2	
16	Running water level (SOHYD_010)	prime	1000	200	200	0	0	400	4.5	
17	Forests - Litterfall (SOBIO_092)	basic	500	100	50	0	600	750	1.4	
18	Meteorological data (SOATM_027)	basic	7000	1000	1000	0	0	2000	3.5	
19	Flying - insects (SOBIO_014)	prime	500	500	0	150	1743	2393	0.95	
20	Groundwater - Nutrients (SOHYD_064)	prime	0	0	100	0	4044	4144	3	
21	Soil water content/temperature (SOHYD_168)	prime	22000	2200	2000	0	0	4200	5.5	
22	Groundwater - Major ion concentrations (SOHYD_062)	prime	0	0	100	0	5870	5970	3	
23	Atmospheric deposition in precipitation (SOATM_103)	basic	250	75	50	0	7827	7952	2.4	
24	Groundwater - chemical/physical properties (SOHYD_006)	prime	27500	13750	200	0	0	13950	9.5	
25	Total		64610	18669	4100	550	20104	43423	51.15	
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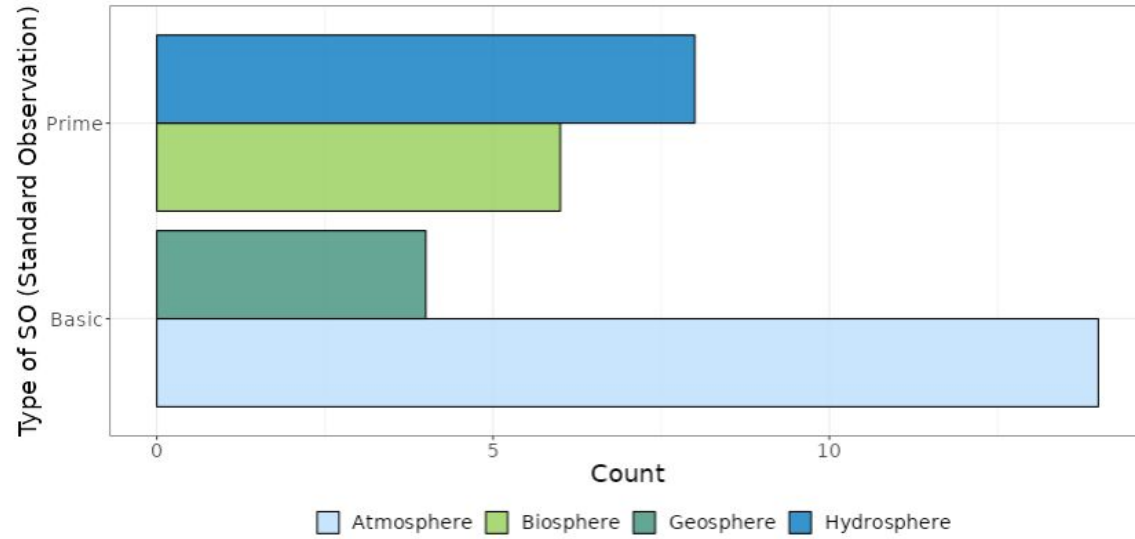
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displaying the costs



Number of standard observations breakdown by sphere

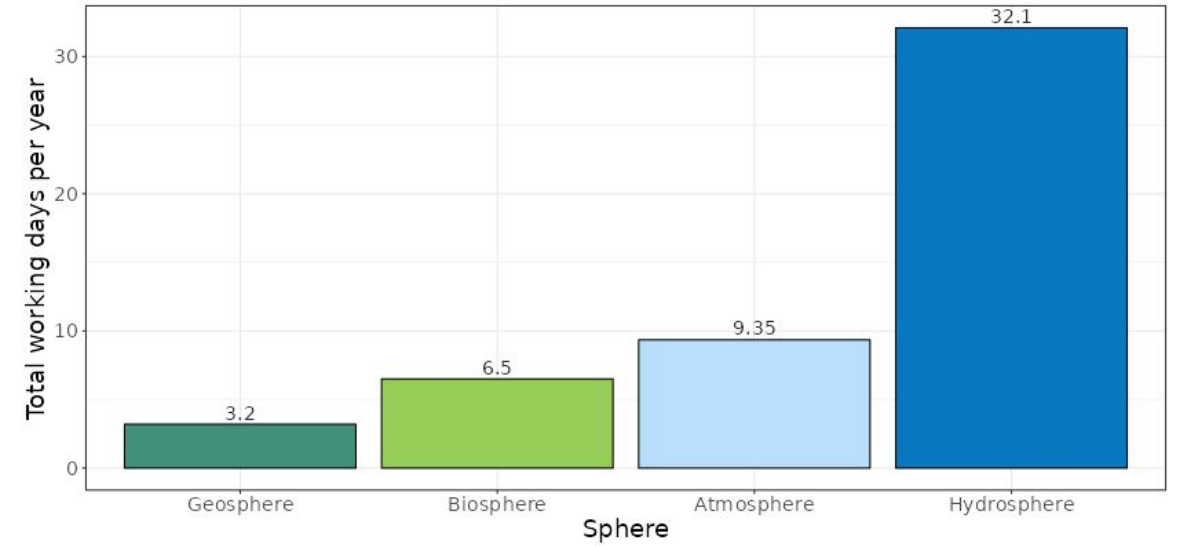
This plot illustrates the total number of SOs needed to operate the eLTER site.



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Annual labor effort by sphere

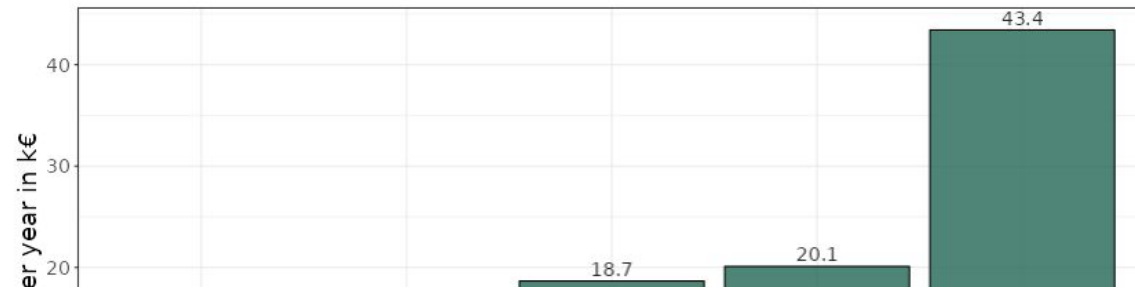
This plot depicts the total working days by sphere needed to operate the eLTER site.



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Annual cost breakdown by type

This plot depicts the total costs (by type) needed to operate the eLTER site.



Annual cost breakdown by sphere

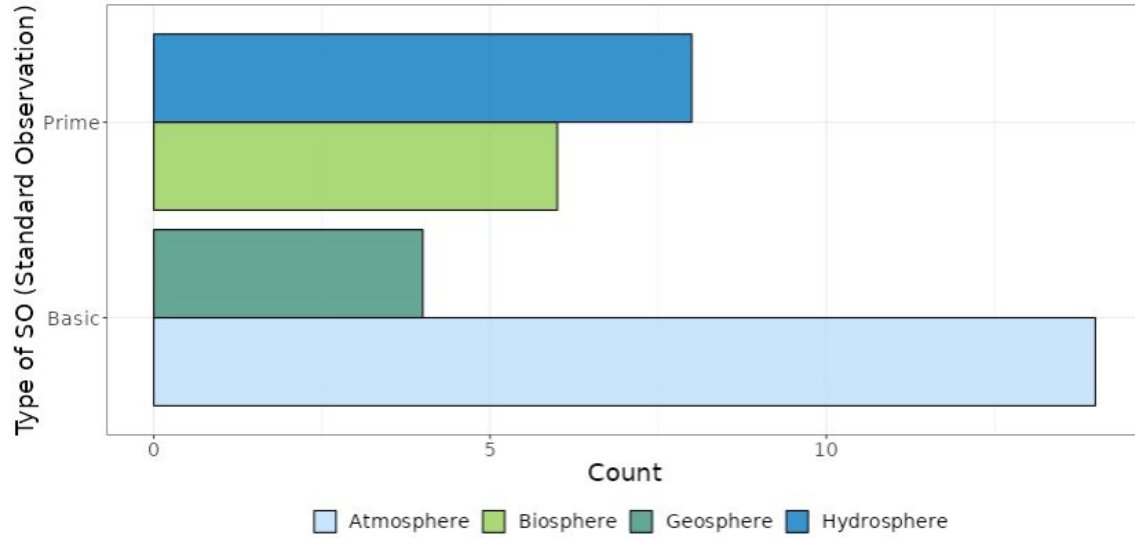
This plot illustrates how costs are distributed across different spheres to operate the eLTER site.





Number of standard observations breakdown by sphere

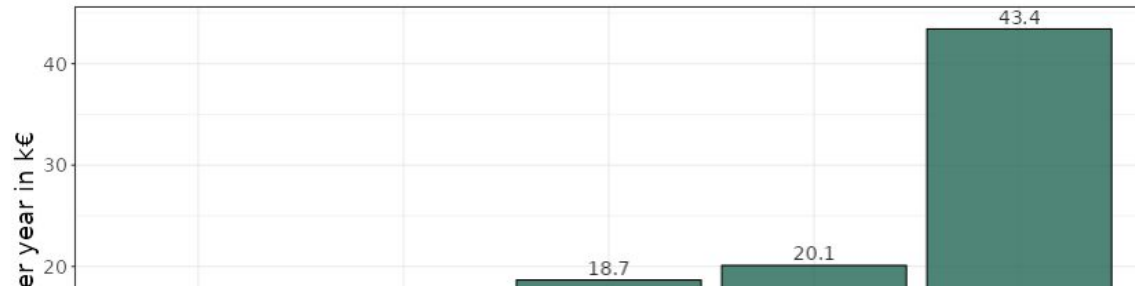
This plot illustrates the total number of SOs needed to operate the eLTER site.



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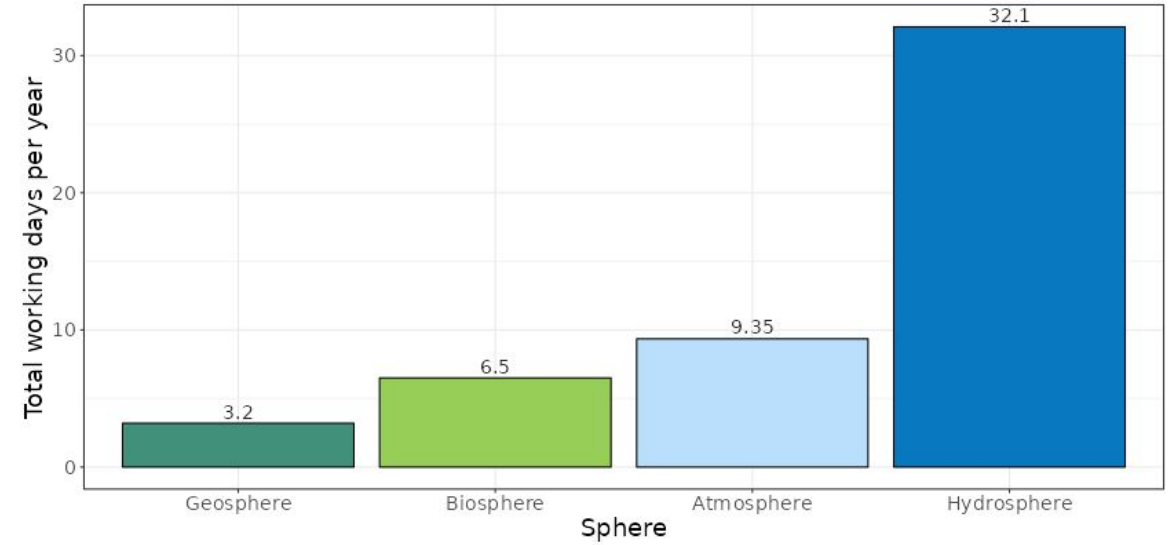
Annual cost breakdown by type

This plot depicts the total costs (by type) needed to operate the eLTER site.



Annual labor effort by sphere

This plot depicts the total working days by sphere needed to operate the eLTER site.



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Annual cost breakdown by sphere

This plot illustrates how costs are distributed across different spheres to operate the eLTER site.



eLTER SO Costs



<https://allantsouza.shinyapps.io/eLTER-SO-costs/>



Acknowledgements

