# gslea cheat sheet

28 October 2021

## Install the package

devtools::install_github("duplisea/gslea")

## Get the excel data dump file

https://github.com/duplisea/gslea/raw/master/EAdata.dump.xlsx

## How much data is available

metadata.f()

## Find variables

find.vars.f("sst") # sea surface temperature

find.vars.f("sst", description=T) # sea surface temperature with description

find.vars.f("bottom") # anything to do with the bottom (e.g. temperature)

find.vars.f("gulf stream") # Gulf stream indices

find.vars.f("oxygen") # oxygen measures

find.vars.f("plankton") # plankton

find.vars.f("galbrai") # data or studies associated with Peter Galbraith

find.vars.f("cod") # anything to do with cod

## Plot time series

EA.plot.f("sst",2000:2020,2) # sea surface temperature, EAR 2, years from 2000 till 2020

EA.plot.f("sst",1:3000,2:3) # sea surface temperature, EAR 2 and 3, all conceivable years

EA.plot.f("sst",1:3000,-10:100) # sea surface temperature, EAR 2 and 3, all conceivable years

EA.plot.f("h.nao",1:3000,-10:100) # Hurrels NAO for all conceivable years

EA.plot.f("wcrb.total",1:3000,-10:100) # Warm core ring births off the Gulf Stream

## Find a variable and plot it, refining the terms as you go

EA.plot.f(find.vars.f("herring"),1970:2021,1) # anything to do with herring from 1970 till 2021 in EAR 1

find.vars.f("herring",description=T) # what are those herring variables?

EA.plot.f("150.all.mn.nt.qc",1970:2021,1) # ok, lets just plot the herring mean biomass from the survey

EA.plot.f("150.all.mn.nt.qc",1970:2021,1, smooth=F) # remove the smoother because it does not make a lot of sense

## Query data

EA.query.f(find.vars.f("herring"),1970:2021,-100:100) # anything to do with herring from 1970 till 2021 in all EARs

EA.query.f("sst",1:3000,-100:100) # sea surface temperature, in all conceivable years and EARs

EA.query.f("sst",1:3000,-100:100,crosstab=T) # sea surface temperature, in all conceivable years and EARs and crosstabulate

## Relationship between variables

EA.cor.f(x="h.nao", y="sst", years=1900:2020, x.EAR=-1, y.EAR=3) # cross-correlation between the NAO and sea surface temperature in EAR 3)

EA.cor.f(x="sst",y="sst", years=1900:2020, x.EAR=1, y.EAR=3) # cross-correlation between the sea surface temperature in EAR 1 and EAR 3

EA.cor.f(x="150.all.mn.nt.qc",y="sst", years=1900:2020, x.EAR=2, y.EAR=2) # between the sea surface temperature in EAR 2 and herring biomass in EAR 2

## Data sources and resource people

sources.f(c("t.200","h.nao","o2.fall.doxy2.bottom")) # data sources for these variables

formattable::formattable(sources.f(c("t.200","h.nao","o2.fall.doxy2.bottom"))) # data sources for these variables and make it look pretty with formattable