VMStools Reference Card

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Data

data(eflalo) load eflalo2 test dataset
data(tacsat) load the tacsat test dataset
data(VMShf) load the VMS high ping rate test dataset
data(europa) load shapefile of Europe
data(harbours) load list of EU-harbours positions
data(ICESareas) load shapefile of ICES areas
formatEflalo(eflalo) put eflalo columns in right format
formatTacsat(tacsat) put tacsat columns in right format
readEflalo(file,sep,dec) read eflalo from file
readTacsat(file,sep,dec) read tacsat from file
rbindTacsat(tacsat1,tacsat2) bind 2 tacsat files
rbindEflalo(eflalo1,eflalo2) bind 2 eflalo files
summarizeTacsat(tacsat) get a summary of tacsat data
summarizeEflalo(eflalo) get a summary of eflalo data

Tacsat Behavior Analyses

filterTacsat(tacsat) filter out records that do not lay within a speed range and/or change of heading interval
pointInHarbour(tacsat) flags tacsat points that are positioned in a harbour
pointOnLand(tacsat) flags tacsat points that are positioned on land
segmentedTacsatSpeed(tacsat,units,CI) detect fishing speed thresholds
sortTacsat(tacsat) sort tacsat data by year, date and position
activityTacsatAnalyse(tacsat,units,analye.by,identify) preprocess speed pattern as input to analyseTacsat
activityTacsat(tacsat,units,analyse.by,storeScheme) analyse speed pattern and define activity
calculateSpeed(tacsat,level,...) calculate speed based on distance traveled and interval time
intervalTacsat(tacsat,level,...) calculate time interval between pings

Link eflalo – tacsat

mergeEflalo2Tacsat(eflalo2,tacsat) merge eflalo2 and tacsat at trip level
estimatePropFishing(tacsat,eflalo2,by) estimate what proportion of logbook effort is considered fishing
mergeEflalo2Pings(x,level,unit) coupling and dispatching eflalo data onto tacsat pings
splitAmongPings(tacsat,eflalo,variable,level) dispatching eflalo data onto tacsat pings
effort(x,by,unit,weight,fill.na) calculate effort from tacsat or eflalo dataset
raiseTacsat(tacsat,eflalo,by) Raise the effort in tacsat to the effort available in eflalo

Interpolate tacsat

interpolateTacsat(tacsat,interval,margin,res,method,params,headingAdjustment) interpolate tacsat data between pings *x* minutes apart using straight line or cubic Hermite spline interpolation
interpolation2Tacsat(interpolation,points) convert interpolation format into tacsat format
calculateCI(int,tacint,params,grid,plot) calculate a confidence interval around the interpolation
diffInter(interpolation,tacsatHighRes) calculate difference between true high-resolution data and interpolated dataset
distanceInterpolation(interpolation) calculate length of interpolation
distanceTacsat(tacsat,index) calculate distance between gps coordinates of a complete VMS dataset
addWidth(interpolation, gearWidth) add a gearwidth to an interpolation

Calculate indicators

findArea(SpatialGridDF,threshold,diagonal) find the minimum area of grid cells, connected with each other, that would pass the threshold
estimateAggregation(table,trustZeros) estimate aggregation of fishing frequency distribution
predictAggDistri(table,trustZeros) predict distribution of pings following aggregation estimation

Plotting

createGrid(xrange,yrange,resx,resy) create spatial grid
nestedGrid(tacsat,resx,resy,maxstep,...) create nested grid map from tacsat data
plotTools(tacsat/eflalo,level,xlim,ylim,control,...) simple plotting routine for either tacsat or eflalo

Converting

bearing(lon1,lat1,lon2,lat2) calculate bearing from tacsat longitude and latitude data
degree2Km(lon,lat,degree) convert degrees to kilometers, only in longitudinal direction
distance(lon1,lat1,lon2,lat2) calculate distance between two gps coordinates
lonLatRatio(lon,lat) ratio between longitude and latitude
eflaloHaul2Tacsat convert the eflalo dataset which holds haul-by-haul data to the tacsat format
kgeur(colnames(eflalo2)) return the columns that contain kg and euro data in the eflalo format
ICESarea(tacsat) calculate ICES area from gps location
ICESrectangle(tacsat) calculate ICES rectangle from gps location
ICESrectangle2LonLat(rectangle) calculate gps location from ICES rectangle from
ICESrectangle2CSquare(rectangle,degrees) convert ICES rectangles to CSquare notation
CSquare(lon,lat, degrees) calculate CSquare notation from gps Location
CSquare2LonLat(CSquare,degrees) convert CSquare to degrees
surface(grid,method) calculate surface of grid cells or polygon
eflalo2relational(eflalo) convert eflalo to relational database style
lonLat2SFPolygons(lon,lat,list) convert longitudes and latitudes to sf class
st_over(sf,sf) st_intersection wrapper to return NA or value of intersection

Linking datasets

clipObs2Tacsat(tacsat,obs,method,control,...) Link tacsat dataset to observation dataset in time and space
matchAIS2Tacsat(ais,tacsat,interval,margin,...) link AIS and tacsat together to get a comparable dataset