

Wikiprint Book

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In the next lines we describe an illustrative example of the `loadSystem4` function. We will retrieve System4 simulation data for the Iberian Peninsula, considering mean surface temperature for January and the first simulation member, for the 10-year period 1990-1999. This simple example has been chosen because of the fast data access (note that this also depends on the connection speed). Using a standard broadband connection, running this example took approximately 21 seconds.

```
> openDAP.query <- loadSystem4(dataset = "http://www.meteo.unican.es/tds5/dodsC/system4/System4_Seasonal_15Members.ncml",
+                               var = "tas", members = 1,
+                               lonLim = c(-10,5), latLim = c(35,45),
+                               season = 1, years = 1990:1999, leadMonth = 1)
```

Data are now loaded into the R session:

```
> str(openDAP.query)
List of 7
 $ VarName      : chr "Mean_temperature_at_2_metres"
 $ VarUnits     : chr "degC"
 $ TimeStep     :Class 'difftime' atomic [1:1] 1
 .. ..- attr(*, "tzone")= chr ""
 .. ..- attr(*, "units")= chr "days"
 $ MemberData   :List of 1
 ..$ : num [1:310, 1:280] 13.3 13.9 12.5 13 13 ...
 $ LatLonCoords : num [1:280, 1:2] 45 44.2 43.5 42.7 42 ...
 ..- attr(*, "dimnames")=List of 2
 .. ..$ : NULL
 .. ..$ : chr [1:2] "lat" "lon"
 $ RunDates     : POSIXlt[1:310], format: "1989-12-01" "1989-12-01" "1989-12-01" ...
 $ ForecastDates:List of 2
 ..$ Start: POSIXlt[1:310], format: "1990-01-01" "1990-01-02" "1990-01-03" ...
 ..$ End  : POSIXct[1:310], format: "1990-01-02" "1990-01-03" "1990-01-04" ...
```

A common task consists of the representation of data, e.g. by mapping the spatial mean for the period considered:

```
> mean.field <- colMeans(openDAP.query$MemberData[[1]])
> lat <- openDAP.query$LatLonCoords[,1]
> lon <- openDAP.query$LatLonCoords[,2]
> # Requires package "akima"
> library(akima)
> filled.contour(interp(lon, lat, mean.field), asp=1,
+                 plot.title = title(main = "Mean surface T January 1990-99", ylab = "latitude", xlab = "longitude"),
+                 key.title = title(main = "degC"),
+                 key.axes = axis(4, seq(-1,16,1)),
+                 color.palette = topo.colors)
```

