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Function:

As for ?Phyton, a *Matlab* function (?loadSystem4.m) has been created in order to access the hindcast of the System4 stored in the *SPECS-EUPORIAS Data Portal* in a user-friendly way. This would be a typical call to the function:

```
[data,run,ens,frc,lat,lon] = loadSystem4(dataset,var,season,leadMonth,'members',members,'xlim',xlim,'ylim',ylim,'user',us
```

The input arguments are next described:

- `dataset`: A string indicating the *url* of the dataset (check the catalog of available datasets ?here).
- `var`: Variable code. Values currently accepted are `tas`, `tasmin`, `tasmax`, `pr` or `mslp`. However, note that new variables and datasets will be progressively included.
- `season`: A cell of two strings indicating the first and final months of analysis. A single month ({'Jan';'Jan'}) or a standard season ({'Dec';'Feb'}) can be specified. Note that months are indicated by their three first letters.
- `leadMonth`: Lead time (in months) to consider. For instance, `leadMonth = 1` for January forecasts means considering the initialization of the first of December .
- `members`: Vector of length *n* indicating the *n* members to consider.
- `xlim`: Vector of length = 2 with minimum and maximum longitude coordinates (in decimal degrees) of the bounding box selected.
- `ylim`: Vector of length = 2 with minimum and maximum latitude coordinates (in decimal degrees) of the bounding box selected.
- `user`: Username for accessing the OPeNPAD dataset.
- `password`: Password for accessing the OPeNPAD dataset.

These are the arguments returned by the function:

- `data`: Cell with *n* elements (one for each year), in which each element (a 2-D matrix) is the data for a particular year. A 2-D matrix of *i* rows and *j* columns, *i* represents the forecast times and *j* the grid-points selected.
- `run`: Cell with *n* elements (one for each year) corresponding to the initialization times selected. Note that there is an initialization time associated to each forecast time.
- `ens`: List of length *n*, where *n* is the number of members of the ensemble selected by the `members` argument.
- `frc`: Cell with *n* elements (one for each year) corresponding to the forecasts times.
- `lat`: Vector with the latitudes of the selected domain.
- `lon`: Vector with the longitudes of the selected domain.

Example:

In this example, the **loadSystem4** function is used to read the maximum temperature for the Iberian Peninsula in August for the whole hindcast period (1981-2010), considering the initialization of the first of June (two-month lead time thus) for a single member (member5, for instance).

```
dataset = 'http://www.meteo.unican.es/tds5/dodsC/system4/System4_Seasonal_15Members.ncml';
var = 'Maximum_temperature_at_2_metres_since_last_24_hours_surface';
[data,run,ens,frc,lat,lon] = loadSystem4(dataset,var,{'Aug';'Aug'},2,'members',5,'xlim',[-10 5],'ylim',[35 45]);
```

The data can be plotted by using the functions from ?MeteoLab, the open-source *Matlab* toolbox for statistical analysis and data mining in Meteorology created by the ?Santander Meteorology Group.