## Mat File data structure

The mat file is a matlab structure with the layout:

Project 🡪 Site 🡪 Variable 🡪 Data where Data has the following variables:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | **Variable Name** | **Type** |  | | X | Number | (Required) | | Y | Number | (Required) | | Data | [3412×1double] | (Required) | | Date | [3412×1double] | (Required) | | Depth | [3412×1double] | (Required) | | Units | Cell | (Optional) | | Title | Cell | (Optional) | | Variable\_Name | String | (Optional) | |  |
|  |  |
|  |  |

To plot Conductivity for Elizabeth\_Bay in the example great.mat:

load great.mat

plot(great.Elizabeth\_Bay.Conductivity.Date,great.Elizabeth\_Bay.Conductivity.Data);

The X,Y information needs to be in the same projection as the model, and the data in the same units as the model. Some common model variables are below.

|  |  |  |
| --- | --- | --- |
| Variable | Units \* | Common Name |
| Physical variables |  |  |
| *T* | °C | Temperature |
| *S* | psu | Salinity |
| *EC* | uS cm-1 | Electrical conductivity |
| *IPAR* | mE m-2 s-1 | Shortwave light intensity |
| *IUV* | mE m-2 s-1 | UV light intensity |
| ** | m-1 | PAR extinction coefficient |
| ** | m-1 | UV extinction coefficient |
| Core biogeochemical variables |  |  |
| *DO* | mmol O2 m-3 | Dissolved oxygen |
| *RSi* | mmol Si m-3 | Reactive Silica |
| *FRP* | mmol P m-3 | Filterable reactive phosphorus |
| *FRP-ADS* | mmol P m-3 | Particulate inorganic phosphorus |
| *NH4+* | mmol N m-3 | Ammonium |
| *NO3-* | mmol N m-3 | Nitrate |
| *DOC* | mmol C m-3 | Dissolved organic carbon |
| *DON* | mmol N m-3 | Dissolved organic nitrogen |
| *DOP* | mmol P m-3 | Dissolved organic phosphorus |
| *POC* | mmol C m-3 | Particulate organic carbon |
| *PON* | mmol N m-3 | Particulate organic nitrogen |
| *POP* | mmol P m-3 | Particulate organic phosphorus |
| *TP* | mmol P m-3 | Total Phosphorus |
| *TN* | mmol N m-3 | Total Nitrogen |
| *TKN* | mmol N m-3 | Total Kjedahl Nitrogen |
| Plankton groups |  |  |
| *GRN* | mmol C m-3 | Chlorophytes |
| *TCHLA* | ug Chla L-1 | Total Chlorophyll-a |
| Benthic groups |  |  |
| *MAC* | mmol C m-2 | Chara biomass |
| Suspended sediment and related properties |  |  |
| *SSs* | g SS m-3 | Suspended solids groups |
| *Turbidity* | NTU | Turbidity |