

## SiSyn data exploration - Nov 11 2020 updated data

**Read in data and check out how many obervations of each variable we have to play with**

```
## # A tibble: 33 x 2
##   variable      n
##   <chr>        <int>
## 1 DSi          42817
## 2 pH           37587
## 3 NOx          37392
## 4 K            35970
## 5 Na           35931
## 6 Mg           35877
## 7 Ca           35844
## 8 Cl           34707
## 9 SO4          34039
## 10 DOC         25601
## 11 NH4         25535
## 12 PO4         24245
## 13 Spec.Cond   21774
## 14 TSS          18772
## 15 Conductivity 17509
## 16 TN           17392
## 17 Temp.C       17255
## 18 TP           17167
## 19 TDN          13308
## 20 alkalinity    10517
## 21 SRP          10029
## 22 Turbidity     8013
## 23 Suspended.Chl 7082
## 24 DIN           6467
## 25 VSS           5053
## 26 DIC           4789
## 27 Daily.Avg.Q.(Discharge) 3752
## 28 TOC           2586
## 29 Instantaneous.Q.(Discharge) 2116
## 30 Benthic.Chl   914
## 31 TDP           741
## 32 NO3           518
## 33 DON          507
```

variable	n
DSi	42817
pH	37587

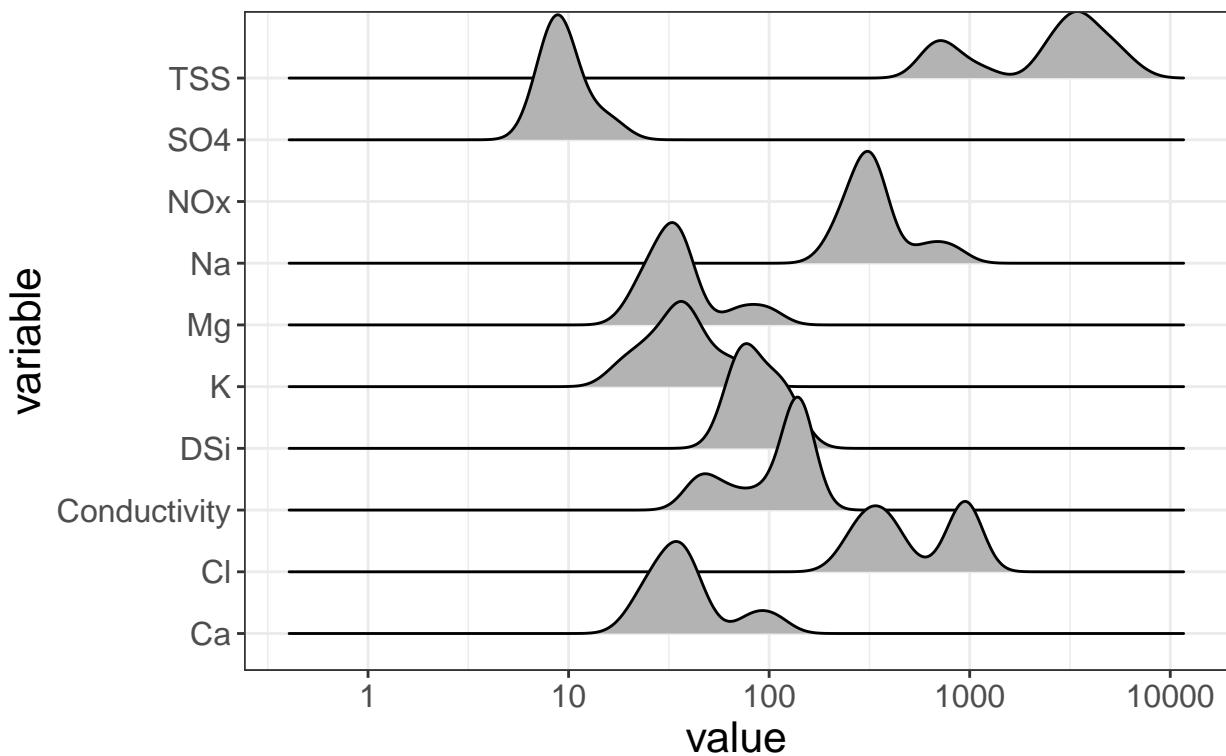
variable	n
NOx	37392
K	35970
Na	35931
Mg	35877
Ca	35844
Cl	34707
SO4	34039
DOC	25601
NH4	25535
PO4	24245
Spec.Cond	21774
TSS	18772
Conductivity	17509
TN	17392
Temp.C	17255
TP	17167
TDN	13308
alkalinity	10517
SRP	10029
Turbidity	8013
Suspended.Chl	7082
DIN	6467
VSS	5053
DIC	4789
Daily.Avg.Q.(Discharge)	3752
TOC	2586
Instantaneous.Q.(Discharge)	2116
Benthic.Chl	914
TDP	741
NO3	518
DON	507

Looking at how many observations we have for DSi per site and day - most only have one observation while others have many (with values that vary widely), but anyways for the following analysis I will take the mean per day/site and ignore this variation

DSi	n
1	40149
2	506
3	114
4	60
5	32
6	25
7	14
8	14
9	11
10	8

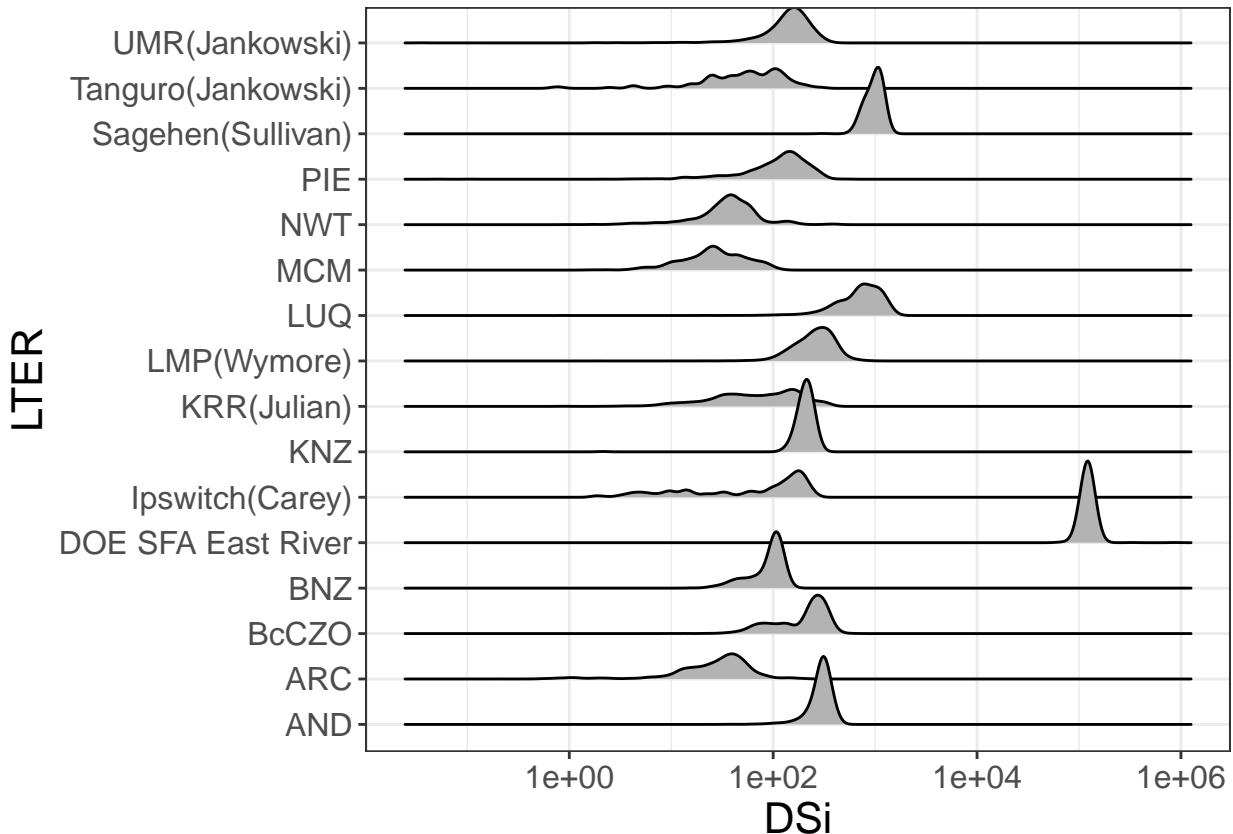
DSi	n
11	2
12	8
13	4
14	2
17	1
18	1
19	3
20	1
21	1
22	2
NA	3748

example of within-site/day variability:  
LUQ\_QG\_1998-09-21

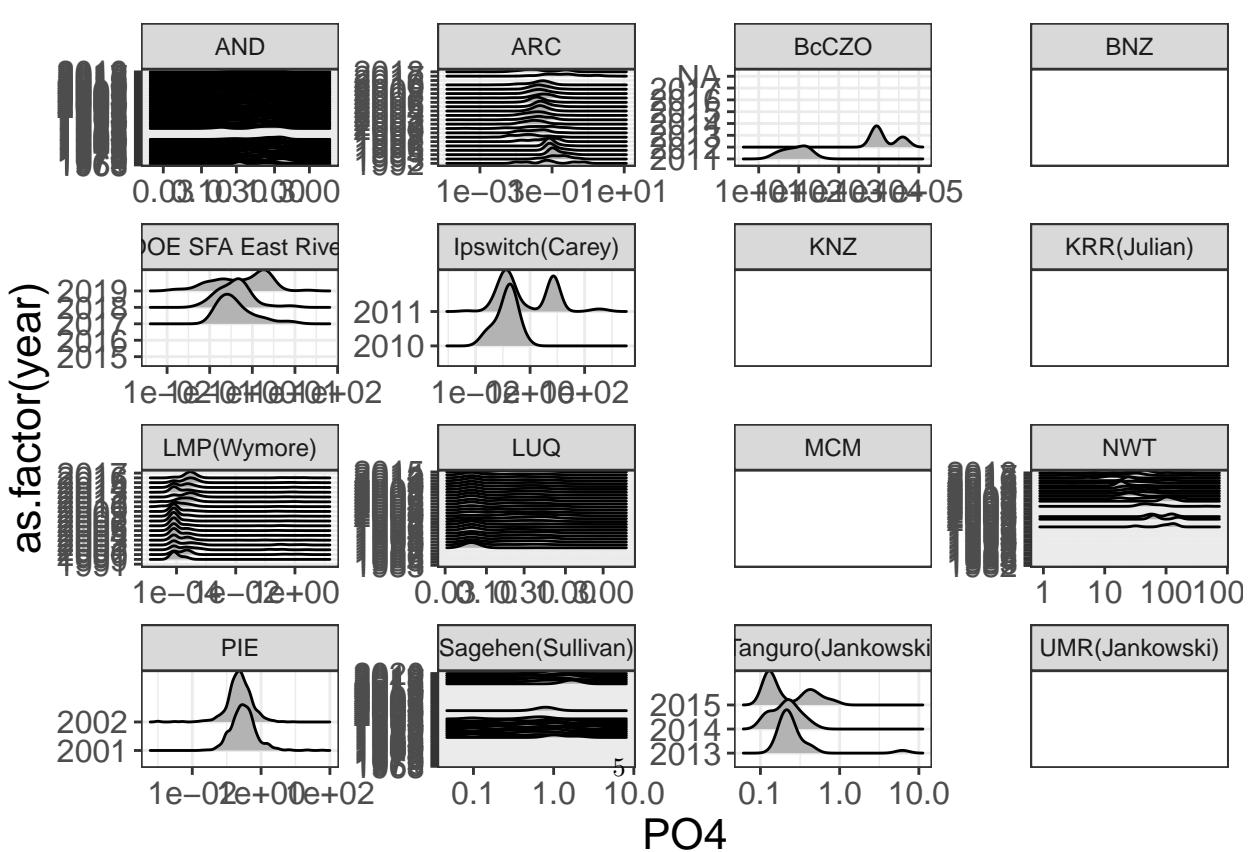
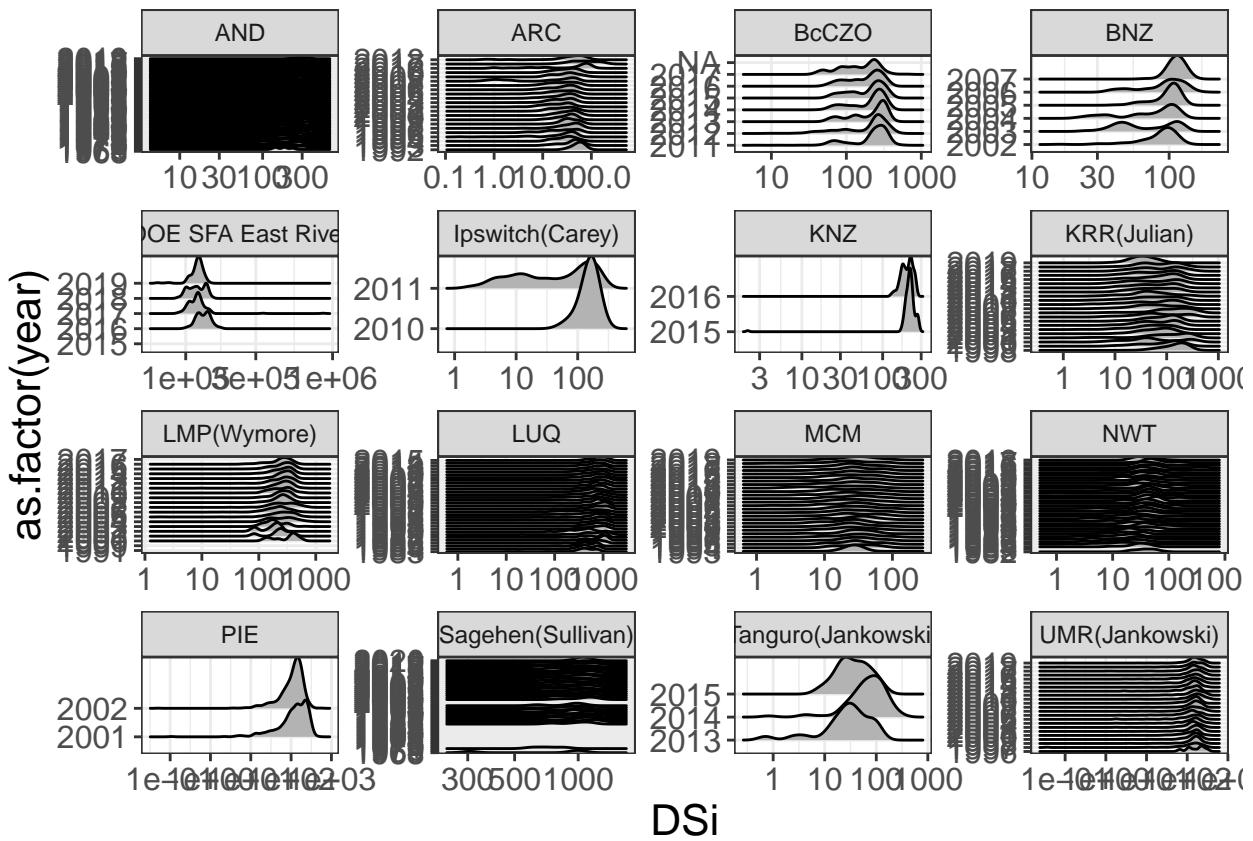


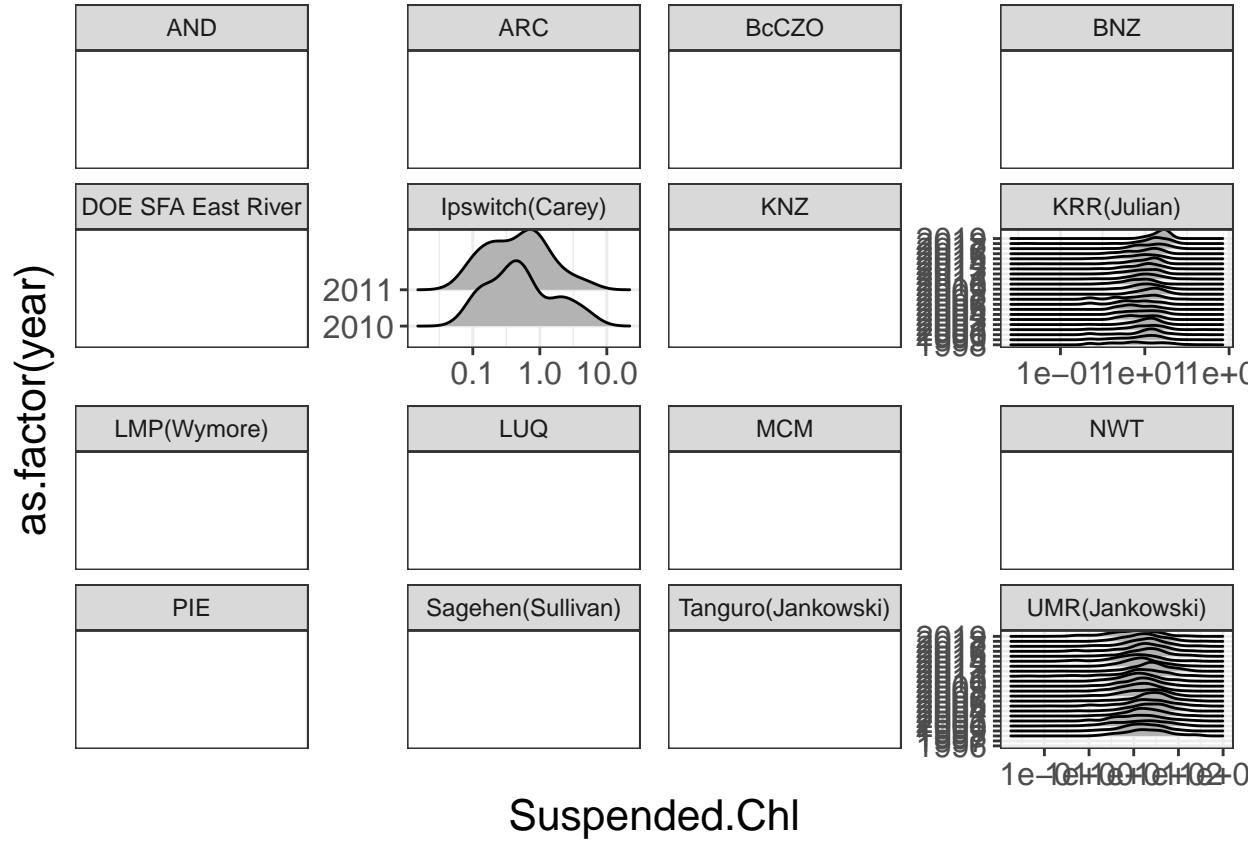
Spreading data to give each variable a column, averaging values by date/site

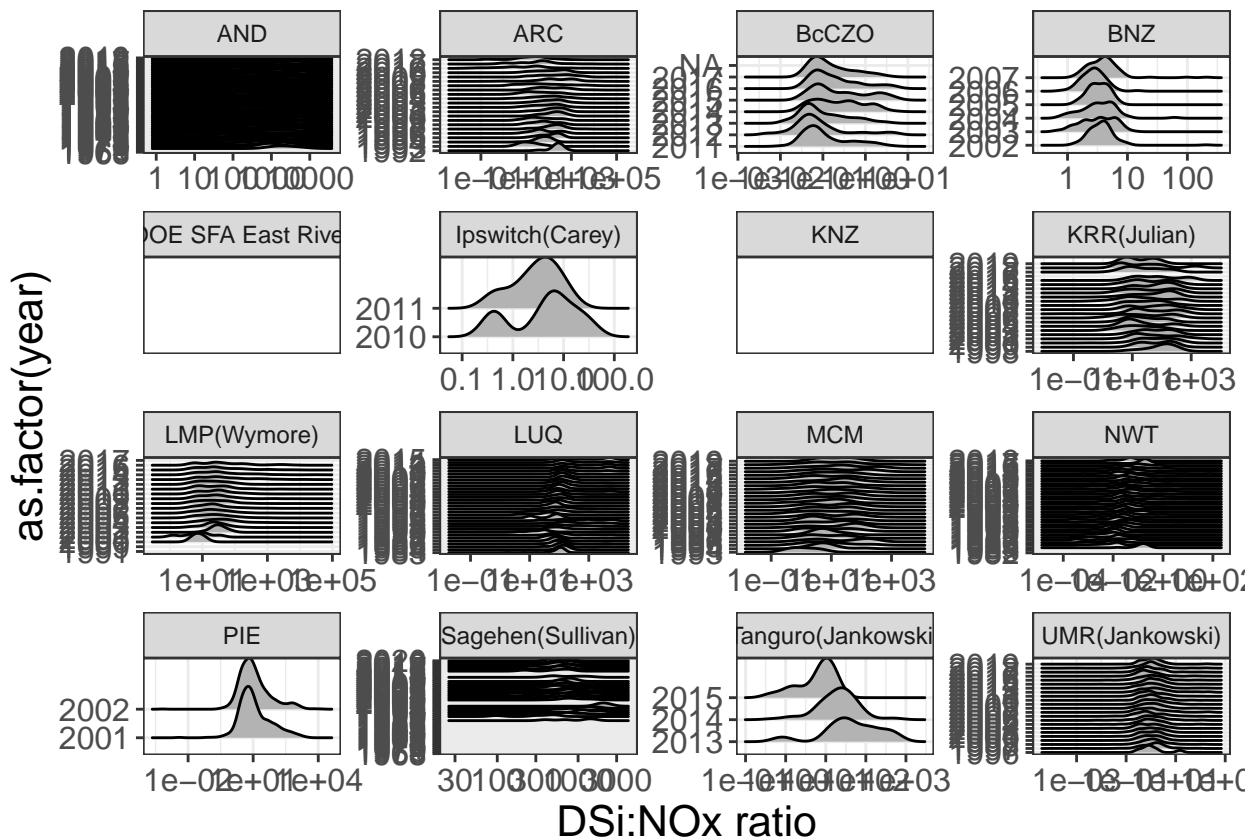
Overall distribution of DSi by LTER site with no regard to time

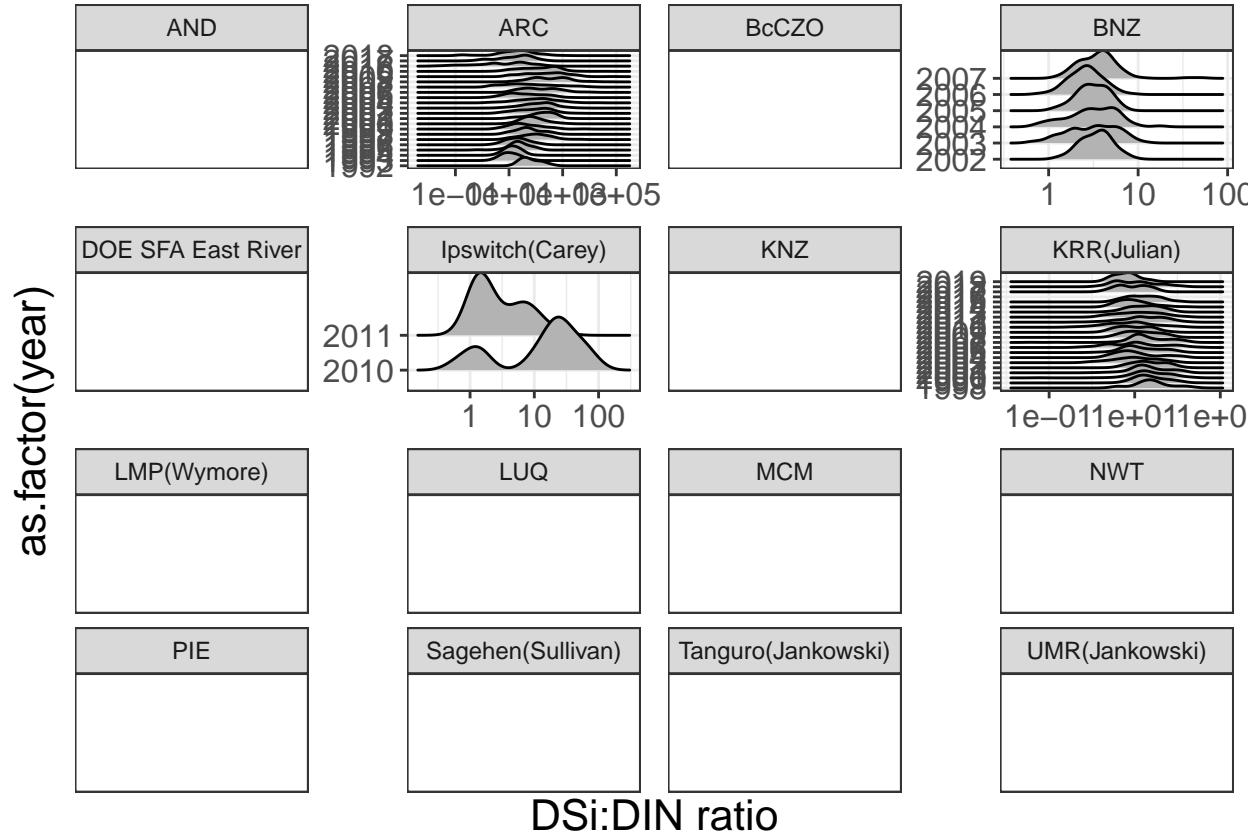


Distributions of DSi and other nutrient concentrations or ratios by year and by LTER site (also shows where certain analytes are missing by sites)









## Exploring general relationships between DSi and other nutrient concentrations

