

## Information Sheet

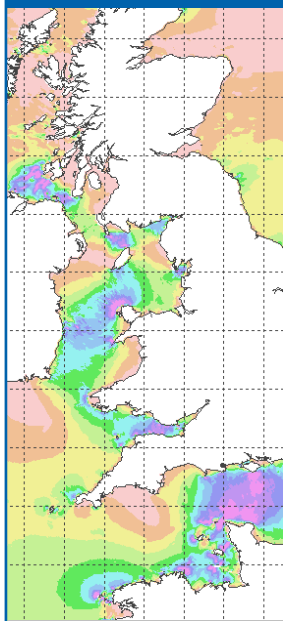


Figure 1: vertical levels in a three-dimensional model grid

Figure 2: Vertical discretisation in ocean models using sigma coordinates

The NOC High Resolution 3D Continental Shelf Model (CS20) has data computed at 32 different depth levels through the water column.

### Background Information

Figure 1 shows a simplified 3D model divided up into a number of vertical slices. These slices can be defined at fixed levels (for example every 2 metres), however, a more useful method is to define the level at specific fractions of the depth for that grid cell called sigma-coordinates as used in the CS20 model. In a sigma-coordinate system, the number of vertical levels in the water column is the same everywhere in the domain irrespective of the depth of the water column. The sigma coordinate model also enables the bottom (benthic) boundary layer to be better resolved across the whole domain. Each model cell contains one value for every variable of interest.

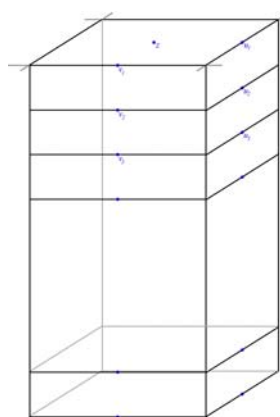


Figure 1

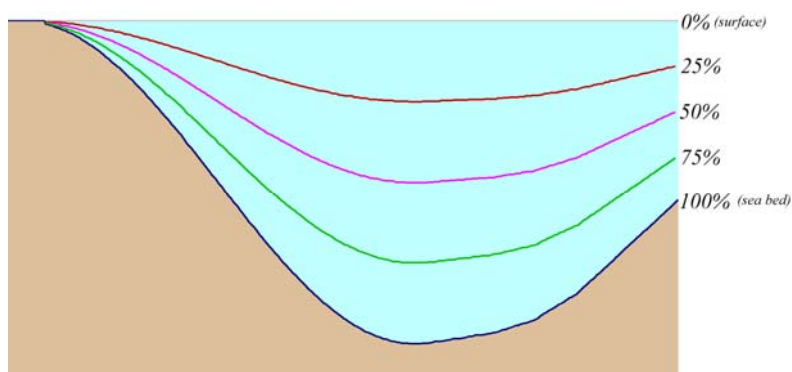


Figure 2

### CS20 levels showing percentage depths and POLPRED availability.

The CS20 sigma levels are denoted by a number 1 to 32.

Level number	% from surface	% from seabed	available in POLPRED
1	98.4375	1.5625	✓
2	95.3125	4.6875	✓
3	92.1875	7.8125	✓
4	89.0625	10.9375	✓
5	85.9375	14.0625	
6	82.8125	17.1875	✓
7	79.6875	20.3125	✓
8	76.5625	23.4375	
9	73.4375	26.5625	✓
10	70.3125	29.6875	✓
11	67.1875	32.8125	
12	64.0625	35.9375	✓
13	60.9375	39.0625	✓
14	57.8125	42.1875	
15	54.6875	45.3125	✓
16	51.5625	48.4375	✓

Level number	% from surface	% from seabed	available in POLPRED
17	48.4375	51.5625	
18	45.3125	54.6875	
19	42.1875	57.8125	
20	39.0625	60.9375	
21	35.9375	64.0625	
22	32.8125	67.1875	
23	29.6875	70.3125	✓
24	26.5625	73.4375	✓
25	23.4375	76.5625	
26	20.3125	79.6875	
27	17.1875	82.8125	
28	14.0625	85.9375	
29	10.9375	89.0625	
30	7.8125	92.1875	
31	4.6875	95.3125	✓
32	1.5625	98.4375	✓