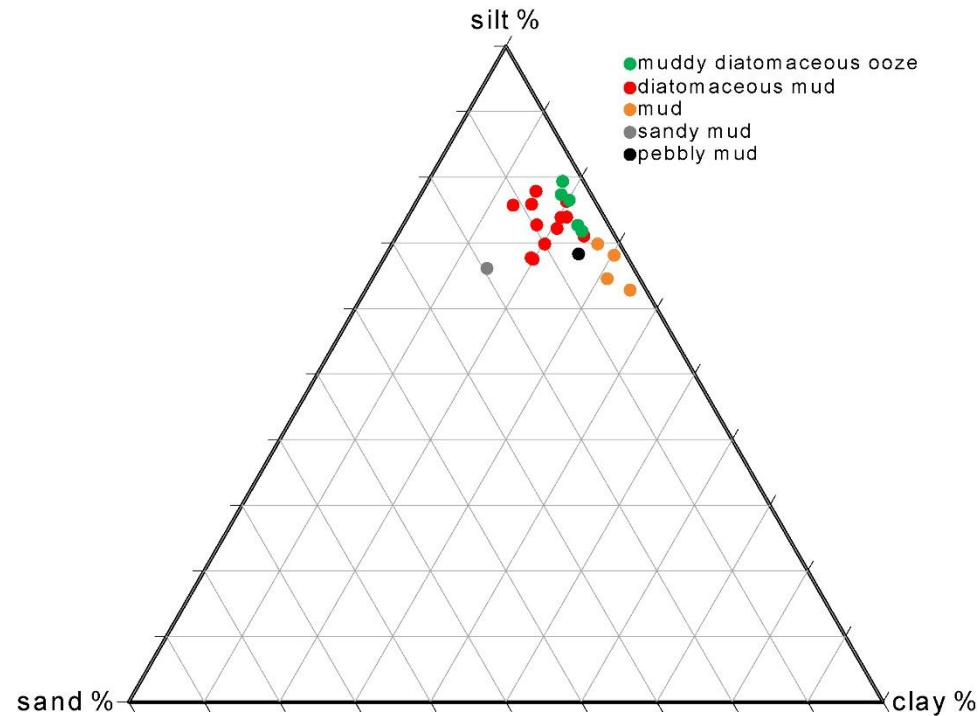


Supplementary file for: Munoz Y.P. & Wellner J.S. 2016. Local controls on sediment accumulation and distribution in a fjord in the West Antarctic Peninsula: implications for palaeoenvironmental interpretations. *Polar Research* 35. Correspondence: Yuribia P. Munoz, Department of Earth and Atmospheric Sciences, University of Houston, 4800 Calhoun Road, Houston, TX 77204, USA. E-mail: [ypmunoz@uh.edu](mailto:ypmunoz@uh.edu)



**Supplementary Fig. S1.** Comparison of sand–silt–clay percent composition of the sedimentary facies in Flandres Bay. Ternary diagram only shows measured sediment samples as shown in Supplementary Table S1. Facies are well grouped indicating homogeneity. Muddy diatomaceous ooze and diatomaceous mud overlap but they are distinguished by their diatom content. Plotted using TRI-PLOT software by Graham & Midgley (2000).

**Supplementary Table S1.** Cores used in this study. X mark signifies grain size measurement and lithology counts completed in a sample. The results are shown in Supplementary Fig. S1 and Figs. 4, 5.

| Ship              | Cruise   | Core ID | Core type           | Latitude | Longitude | Water depth (m) | Core length (cm) | Grain size measurement | Lithology counts | Pebbles   | Sediment facies         |
|-------------------|----------|---------|---------------------|----------|-----------|-----------------|------------------|------------------------|------------------|-----------|-------------------------|
| <i>Glacier</i>    | DF82     | GB152   | grab sample         | -65.088  | -63.168   | 689             | 0                |                        |                  | scattered | diatomaceous mud        |
| <i>Glacier</i>    | DF82     | GB153   | grab sample         | -65.133  | -63.192   | 351             | 0                |                        |                  | abundant  | pebbly mud              |
| <i>Glacier</i>    | DF82     | GB154   | grab sample         | -65.088  | -63.167   | 689             | 0                |                        |                  | scattered | diatomaceous mud        |
| <i>Glacier</i>    | DF82     | GB155   | grab sample         | -65.02   | -63.26    | 437             | 0                |                        |                  | scattered | muddy diatomaceous ooze |
| <i>Glacier</i>    | DF85     | TC57    | trigger core        | -65.097  | -63.17    | 650             | 15               |                        | X                | scattered | mud                     |
| <i>Glacier</i>    | DF85     | TC58    | trigger core        | -65.078  | -63.178   | 439             | 16               |                        | X                | common    | diatomaceous mud        |
| <i>Glacier</i>    | DF85     | TC59    | trigger core        | -65.052  | -63.19    | 384             | 13               |                        | X                | common    | muddy diatomaceous ooze |
| <i>Glacier</i>    | DF86     | GB77    | grab sample         | -65.147  | -63.2     | 448             | 0                |                        |                  | abundant  | pebbly mud              |
| <i>Glacier</i>    | DF86     | BC78    | box core            | -65.102  | -63.167   | 650             | 37               |                        |                  | none      | muddy diatomaceous ooze |
| <i>Glacier</i>    | DF86     | BC79    | box core            | -64.995  | -63.333   | 494             | 36               |                        |                  | none      | muddy diatomaceous ooze |
| <i>Polar Duke</i> | PD88-III | GB27    | grab sample         | -65.07   | -63.177   | 585             | 0                |                        |                  | none      | muddy diatomaceous ooze |
| <i>Polar Duke</i> | PD88-III | GB28    | grab sample         | -65.118  | -63.165   | 467             | 0                |                        |                  | none      | diatomaceous mud        |
| <i>Polar Duke</i> | PD88-III | GB29    | grab sample         | -65.106  | -63.172   | 620             | 0                |                        |                  | none      | muddy diatomaceous ooze |
| <i>Polar Duke</i> | PD90-VII | GB2     | Smith-McIntyre grab | -64.952  | -63.531   | 460             | 0                |                        |                  | abundant  | pebbly mud              |
| <i>Polar Duke</i> | PD90-VII | GB3     | Smith-McIntyre      | -65.002  | -63.348   | 500             | 0                | X                      | X                | none      | diatomaceous mud        |

|                                        |          |       | grab                |          |          |     |     |    |    |           |                         |
|----------------------------------------|----------|-------|---------------------|----------|----------|-----|-----|----|----|-----------|-------------------------|
| <i>Polar Duke</i>                      | PD90-VII | GB4   | Smith-McIntyre grab | -65.068  | -63.175  | 580 | 0   | X  | X  | none      | diatomaceous mud        |
| <i>Polar Duke</i>                      | PD90-VII | GB5   | Smith-McIntyre grab | -65.089  | -63.151  | 530 | 0   | X  | X  | none      | mud                     |
| <i>Polar Duke</i>                      | PD90-VII | GB6   | Smith-McIntyre grab | -65.121  | -63.191  | 171 | 0   | X  | X  | none      | mud                     |
| <i>Polar Duke</i>                      | PD90-VII | GB7   | Smith-McIntyre grab | -65.139  | -63.205  | 408 | 0   | X  | X  | none      | mud                     |
| <i>Polar Duke</i>                      | PD90-VII | GB8   | Smith-McIntyre grab | -65.155  | -63.22   | 493 | 0   | X  | X  | none      | mud                     |
| <i>Polar Duke</i>                      | PD90-VII | GB9   | Smith-McIntyre grab | -65.166  | -63.228  | 490 | 0   | X  | X  | none      | mud                     |
| <i>Polar Duke</i>                      | PD90-VII | GB11  | Smith-McIntyre grab | -65.006  | -63.346  | 445 | 0   | X  | X  | abundant  | diatomaceous mud        |
| <i>Polar Duke</i>                      | PD90-VII | GB12  | Smith-McIntyre grab | -64.978  | -63.418  | 440 | 0   |    |    | abundant  | pebbly mud              |
| <i>Palmer</i>                          | NBP0703  | KC29  | kasten core         | -65.0516 | -63.1031 | 684 | 188 | X  | X  | common    | diatomaceous mud        |
| <i>Palmer</i>                          | NBP0703  | TC30  | trigger core        | -65.0515 | -63.1038 | 684 | 94  | X  | X  | scattered | diatomaceous mud        |
| <i>Palmer</i>                          | NBP0703  | KC31  | kasten core         | -65.0028 | -63.3144 | 723 | 266 | X  | X  | scattered | diatomaceous mud        |
| <i>Palmer</i>                          | NBP0703  | TC32  | trigger core        | -65.0065 | -63.3075 | 713 | 137 | X  | X  | scattered | diatomaceous mud        |
| Total short cores and grab samples: 27 |          |       |                     |          |          |     |     | 12 | 15 |           |                         |
| <i>Glacier</i>                         | DF82     | PC151 | piston core         | -64.967  | -63.335  | 360 | 286 | X  | X  | scattered | muddy diatomaceous ooze |
| <i>Glacier</i>                         | DF82     | PC152 | piston core         | -65.088  | -63.168  | 689 | 210 | X  | X  | scattered | diatomaceous mud        |
| <i>Glacier</i>                         | DF82     | PC153 | piston core         | -65.133  | -63.192  | 351 | 46  | X  | X  | abundant  | pebbly mud              |

|                       |          |       |                      |          |          |     |       |    |    |           |                            |
|-----------------------|----------|-------|----------------------|----------|----------|-----|-------|----|----|-----------|----------------------------|
| <i>Glacier</i>        | DF82     | PC154 | piston core          | -65.088  | -63.167  | 689 | 229   | X  | X  | common    | diatomaceous mud           |
| <i>Glacier</i>        | DF82     | PC155 | piston core          | -65.02   | -63.26   | 437 | 280   | X  | X  | scattered | muddy<br>diatomaceous ooze |
| <i>Glacier</i>        | DF82     | PC156 | piston core          | -64.94   | -63.617  | 608 | 264   | X  | X  | scattered | sandy mud                  |
| <i>Glacier</i>        | DF85     | PC57  | piston core          | -65.097  | -63.17   | 650 | 246   |    | X  | common    | diatomaceous mud           |
| <i>Glacier</i>        | DF85     | PC58  | piston core          | -65.078  | -63.178  | 439 | 175   |    | X  | common    | diatomaceous mud           |
| <i>Glacier</i>        | DF85     | PC59  | piston core          | -65.052  | -63.19   | 384 | 423   | X  | X  | common    | muddy<br>diatomaceous ooze |
| <i>Glacier</i>        | DF85     | PC60  | piston core          | -65.023  | -63.273  | 448 | 262   |    |    | common    | muddy<br>diatomaceous ooze |
| <i>Polar Duke</i>     | PD88-III | PC29  | piston core          | -65.106  | -63.172  | 620 | 191   | X  | X  | scattered | muddy<br>diatomaceous ooze |
| <i>Palmer</i>         | NBP0201  | PC29  | piston core          | -65.1065 | -63.1391 | 670 | 196   | X  | X  | scattered | muddy<br>diatomaceous ooze |
| <i>Palmer</i>         | NBP0703  | JPC30 | jumbo piston<br>core | -65.0515 | -63.1038 | 684 | 572.5 | X  | X  | scattered | diatomaceous mud           |
| <i>Palmer</i>         | NBP0703  | JPC32 | jumbo piston<br>core | -65.0065 | -63.3075 | 713 | 666   | X  | X  | none      | diatomaceous mud           |
| Total (all cores): 41 |          |       |                      |          |          |     |       | 23 | 28 |           |                            |

## Reference

Graham D.J. & Midgley N.G. 2000. Graphical representation of particle shape using triangular diagrams: an Excel spreadsheet method. *Earth Surface Processes and Landforms* 25, 1473-1477.