

# Regional flow conditions associated with stratocumulus cloud-eroding boundaries over the southeast Atlantic

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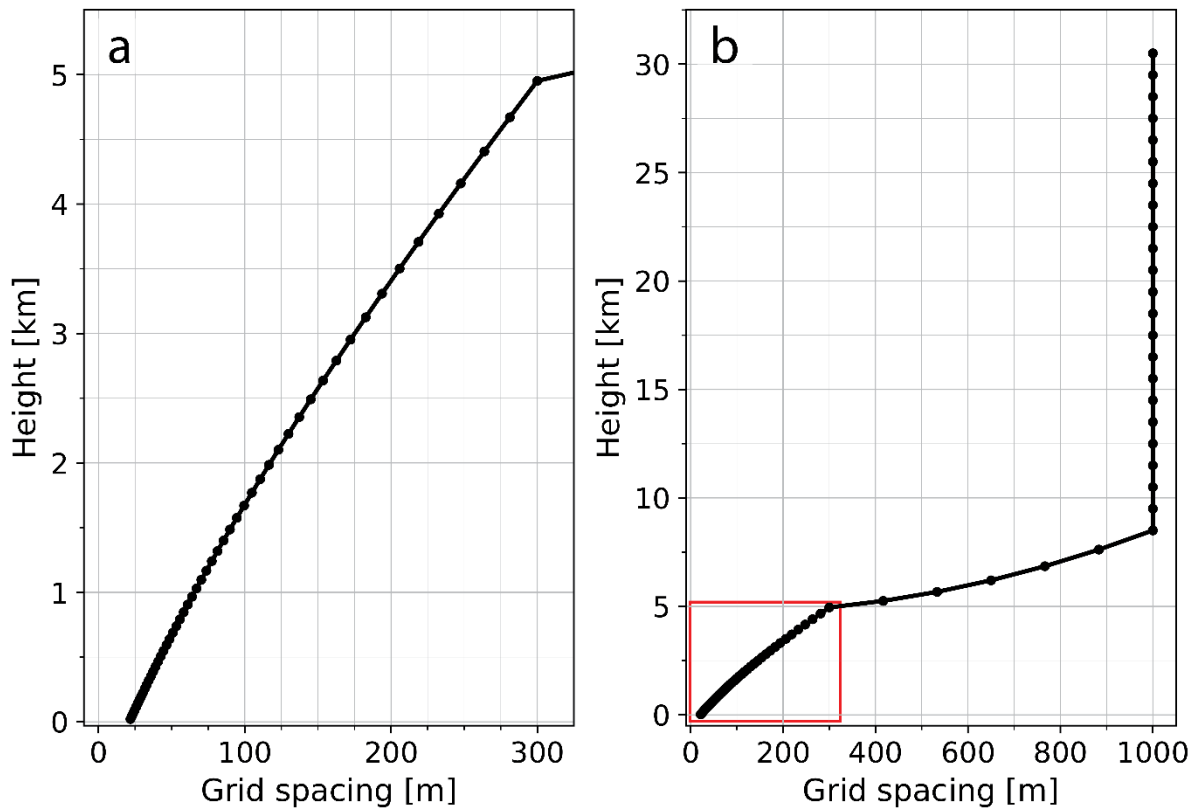
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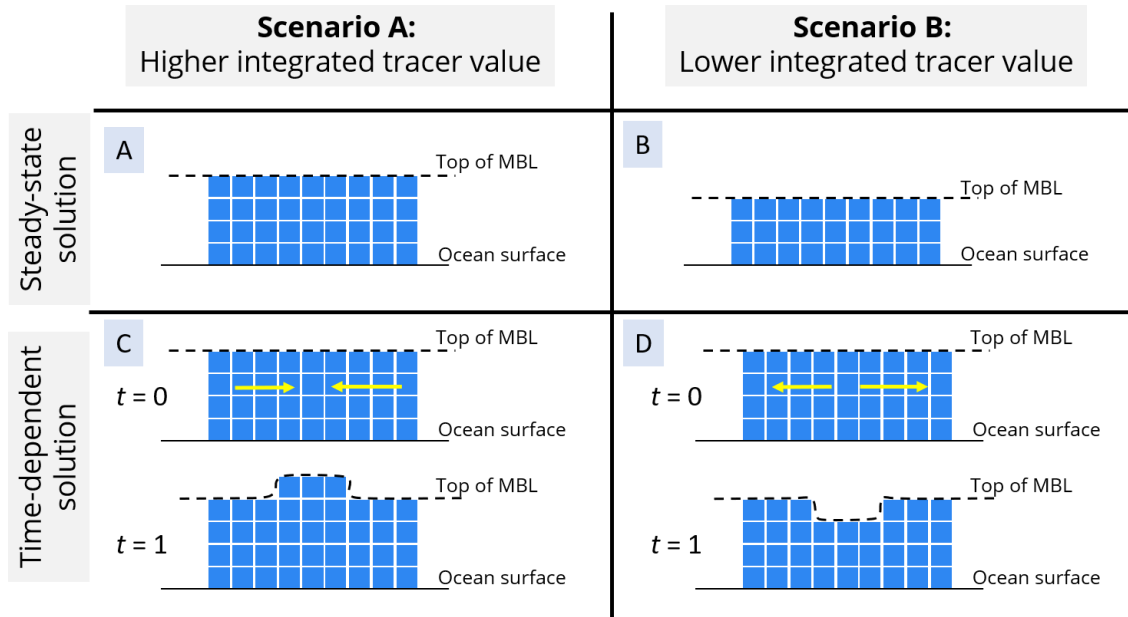
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## Supplemental Material

### Figures:



**Fig. S1.** Vertical grid spacing in the model as a function of height for (a) lower 5 km and (b) full model vertical extent. Red box in (b) shows location of (a).



**Fig. S2.** Visual explanation of situations when integrated tracer values are relatively higher or lower. Each panel represents an idealized vertical cross section of the boundary layer at some time with the blue boxes representing the tracer concentration of a simplified grid in the model. The solid line represents the ocean surface, and the black dashed line represents the top of the marine boundary layer. The left panels (A, C) depict scenario A where there is a higher integrated tracer value, and the right panels (B, D) depict scenario B where there is a lower integrated tracer value. The top row of panels (A, B) indicates a “steady-state solution”, and the bottom panels (C, D) indicate “time-dependent solutions”. The steady-state or slowly evolving solutions (A, B) indicate situations where you might have a generally deeper (A) or shallower (B) boundary layer. The time-dependent solutions (C, D) occur when the boundary layer deepens associated with convergence (C) or when the boundary layer becomes shallower associated with divergence (D).

### **Animation Captions:**

**Animation S1:** Animation of figure 4 valid very hour from 21 May 2013 0000 UTC through 27 May 2013 0000 UTC from the active #1 period.

**Animation S2:** Animation of figure 5 valid very hour from 23 May 2014 0000 UTC through 29 May 2014 0000 UTC from the active #2 period.

**Animation S3:** Animation of figure 6 valid very hour from 22 May 2008 0000 UTC through 28 May 2008 0000 UTC from the null #1 period.

**Animation S4:** Animation of figure 7 valid very hour from 02 May 2009 0000 UTC through 08 May 2009 0000 UTC from the null #2 period.

**Animation S5:** Animation of figure 8 valid very hour from 21 May 2013 0000 UTC through 27 May 2013 0000 UTC from the active #1 period.

**Animation S6:** Animation of figure 9 valid very hour from 23 May 2014 0000 UTC through 29 May 2014 0000 UTC from the active #2 period.

**Animation S7:** Animation of figure 10 valid very hour from 22 May 2008 0000 UTC through 28 May 2008 0000 UTC from the null #1 period.

**Animation S8:** Animation of figure 11 valid very hour from 02 May 2009 0000 UTC through 08 May 2009 0000 UTC from the null #2 period.