



## Mass budget of the grounded ice in Lambert Glacier-Amery Ice Shelf system

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We present estimates of the mass budgets of the grounded ice in the Lambert Glacier-Amery Ice Shelf system (LAS) that consists drainages 9, 10 and 11, using a GIS environment to combine a variety of data sets derived from remote sensing and in situ measurements. The grounding line of the LAS defined by Fricker *et al.* (2002) is modified with InSAR and velocity data in vector form with a spacing interval of 400 m. Our findings show the total accumulation of the LAS grounded portion is  $84.7 \pm 4.2 \text{ Gt a}^{-1}$  while the ice flux across the grounding line into the Amery Ice Shelf is  $88.9 \pm 8.9 \text{ Gt a}^{-1}$ , implying the whole grounded drainage basin is approximately in balance. Drainages 9, 10 and 11 are also nearly in balance with mass budgets of  $-2.5 \pm 2.8 \text{ Gt a}^{-1}$ ,  $-2.6 \pm 7.8 \text{ Gt a}^{-1}$  and  $0.91 \pm 2.3 \text{ Gt a}^{-1}$ , respectively. The region upstream of the Australian LGB traverse has a net mass budget of  $4.4 \pm 6.3 \text{ Gt a}^{-1}$ , while the downstream region,  $-8.9 \pm 9.9 \text{ Gt a}^{-1}$ . These results indicate that the glacier drainages in western, central and eastern portions of the LAS, upstream and downstream of the Australian LGB traverse are close to balance or have relatively smaller imbalances.