Greenland and Antarctica - Ice Sheets #2

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CryoSat-2 continues to enable science

CryoSat-2 continues to deliver unique and invaluable data for monitoring the evolving ice sheet instability in West Antarctica, subglacial lakes and for use in multiple-source statistical modelling approaches

Machine Learning a future option for data analysis
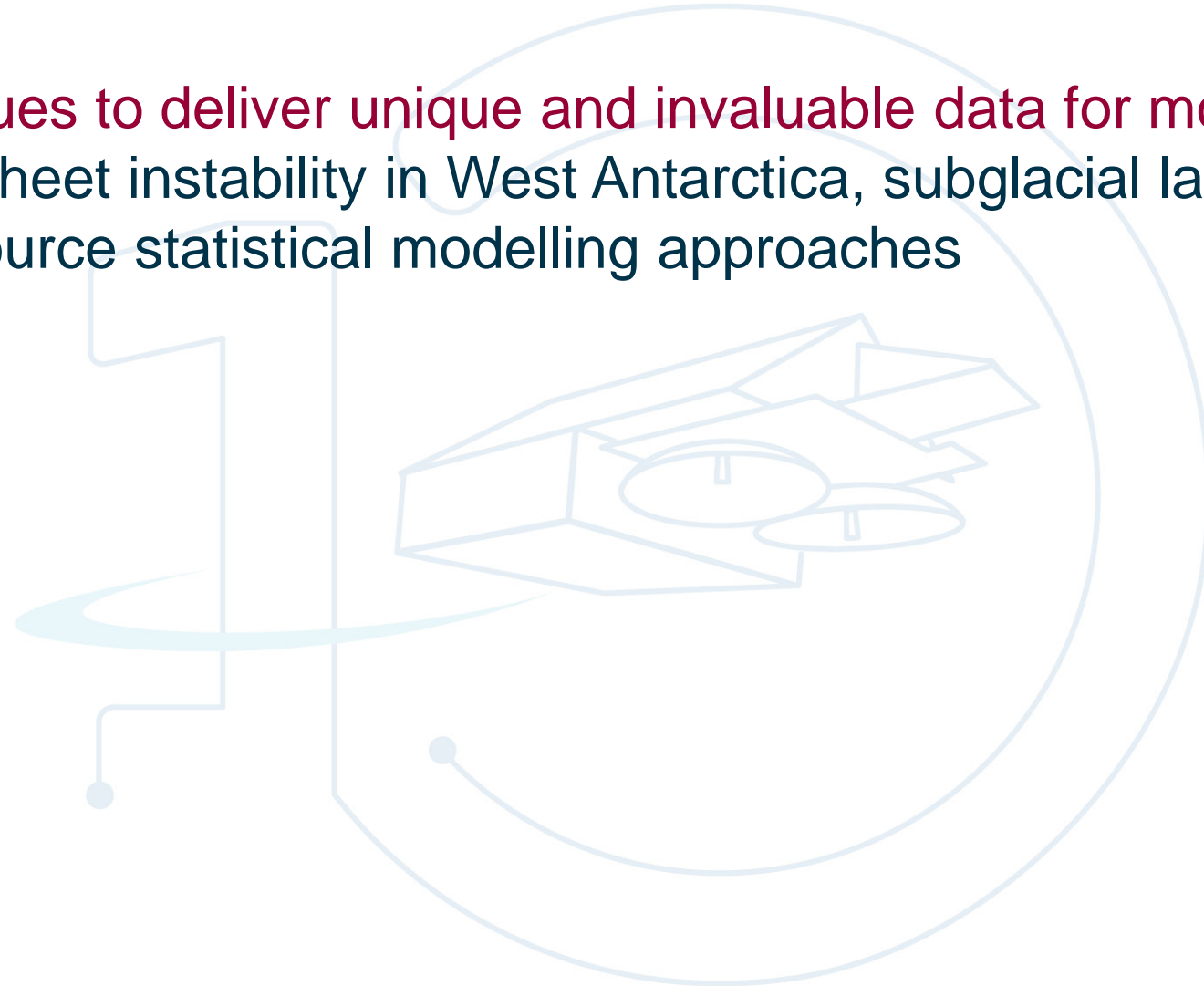
CryoSat-2 data can be successfully used to determine subglacial lake drainage events in Antarctica. In future Machine Learning approaches may be explored to turn it into an automated detection; also further investigation of the ability of coarser resolution historical altimeters to build multi-decadal datasets would be valuable.

SMRT ready for altimetry
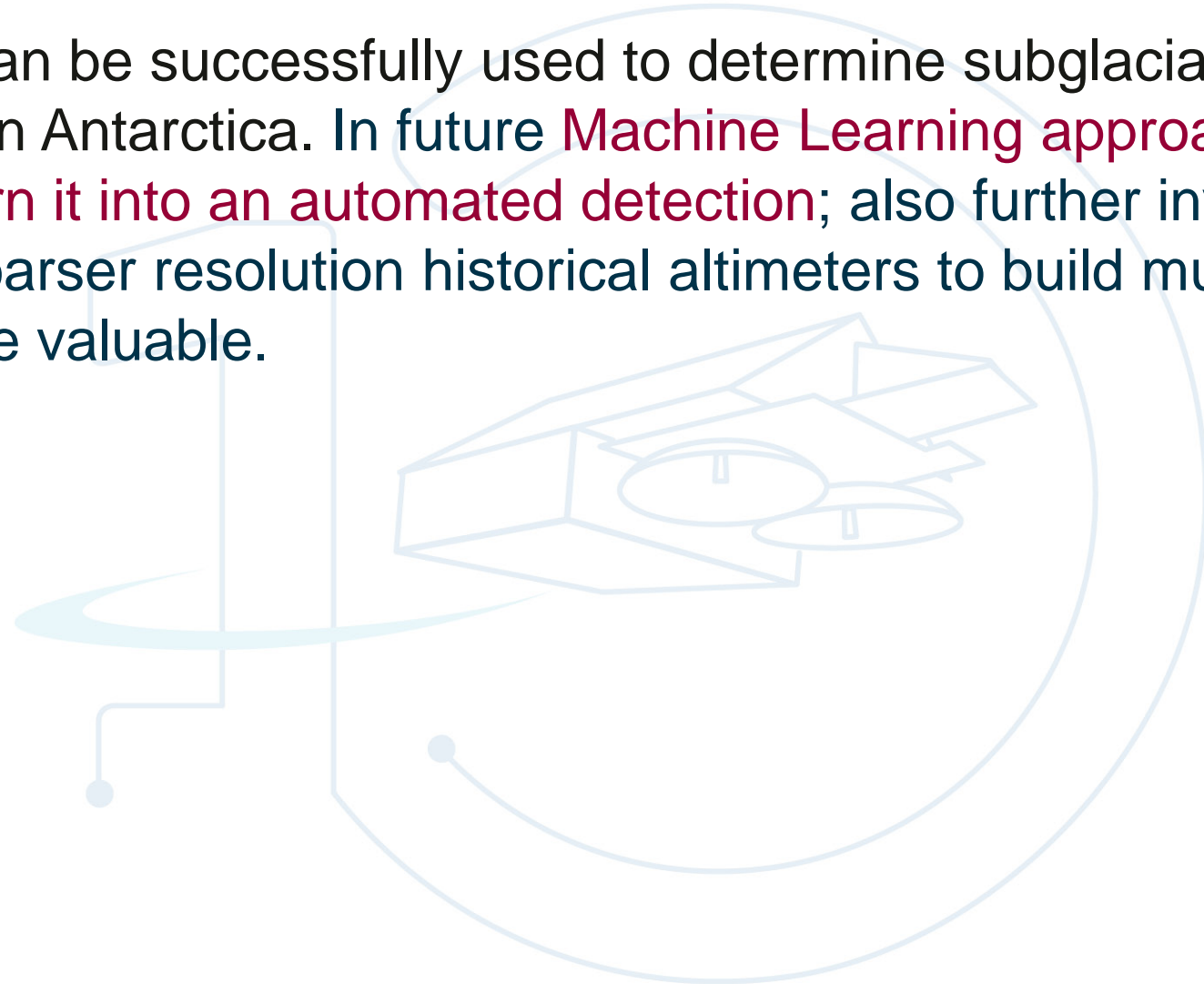
The Snow Microwave Radiation Transfer (SMRT) has been extended with a new module for altimetry, which enables future application for CS, CRISTAL and other altimeters surveying ice sheets, in Ka-band volume scattering is large, but penetration depth is low.
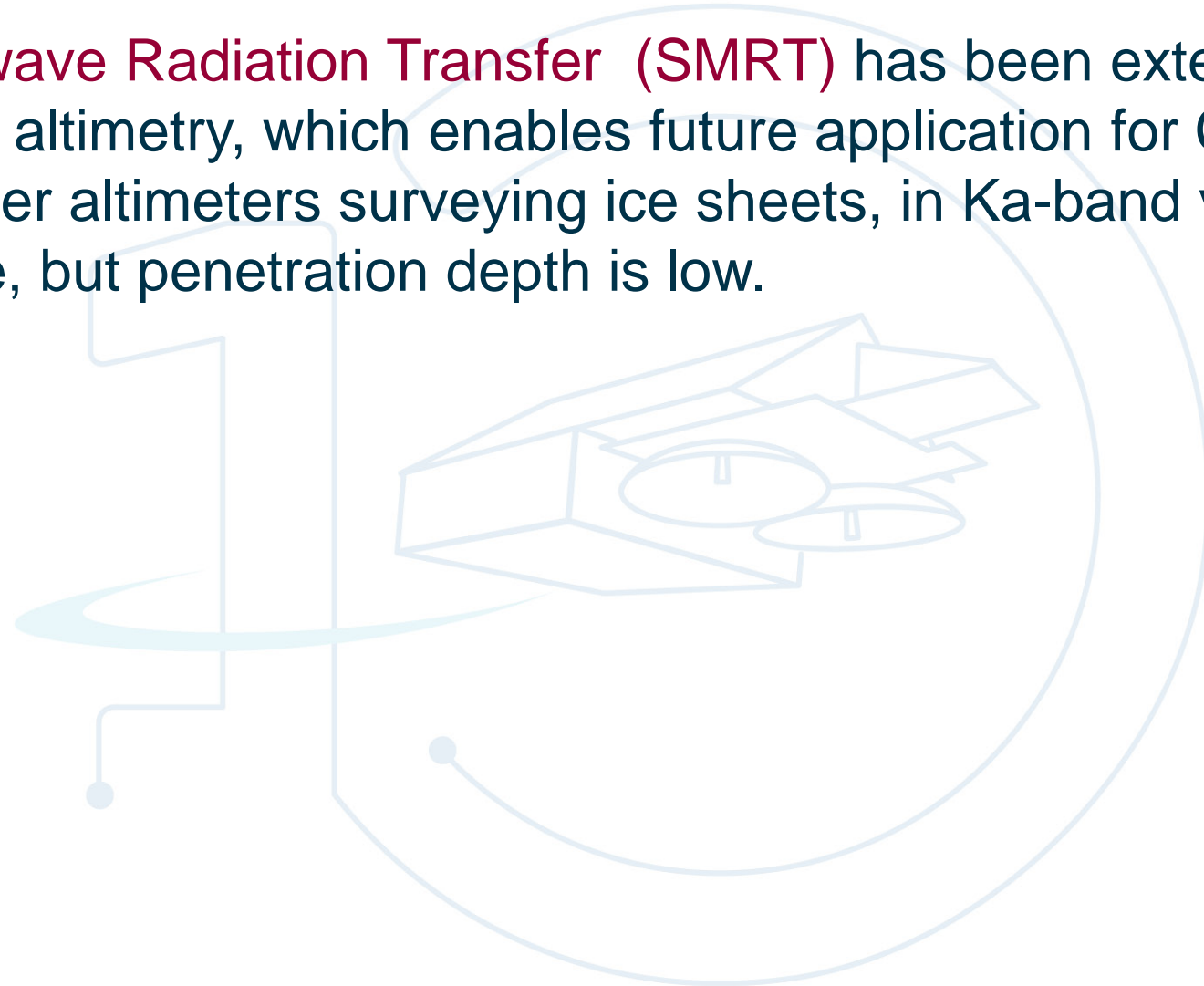
With increasing air temperatures, accumulation of snow is likely to increase, which may buffer the effect of mass loss in the West Antarctic Ice Sheet. Given the vast size of the East Antarctic Plateau, a pole hole as in S3 is missing 20% of the area. Only 1cm/yr WE more accumulation in that area amounts to 28 Gt/yr. Coverage up to 88° S misses only 1% hence only 1.5Gt/yr for an increase of 1cm/yr WE.

In short:

No gaps in altimetry covering polar areas up to 88° N/S!