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"Analysis of Arctic Ice Features"

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(given by E. Paul McClain, NOAA)

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SUMMARY

Previously available satellite pictures from ITOS and Nimbus have been useful for ice surveillance, but their relatively coarse ground resolution limited their detection capabilities to only the major ice boundaries and the largest ice features. The ERTS imagery is clearly the best sequential, synoptic data on ice ever taken by means of remote sensing for purposes of ice dynamics studies such as those being conducted as part of the AIDJEX project. It is of the highest importance for these investigations that ERTS coverage of the western Beaufort Sea area be maintained as long as illumination conditions are adequate. Four of six IRLS transmitters emplaced in the ice are still functioning.

Figs. 1 and 2 (MSS 4 and 7) illustrate a variety of ice conditions in the vicinity of Cornwall Island (78N, 95W) on 27 August 1972. Fig. 3 (MSS-7) shows the same area a few days earlier (23 August), and the significant changes in some areas are readily apparent. Surface air temperatures at Resolute (75N, 95W) were near or slightly below freezing at local noon during this period. The Canadian Ice Central reported total ice concentrations varying from open pack (6/10) to consolidated pack (10/10). Multi-year and second-year ice each ranged from 1/10 to 4/10, with first-year ice varying from 2/10-4/10. Some puddles, 6/10 frozen, were reported.

Figs. 4 and 5 (MSS 5 and 7) illustrate rather different ice conditions

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than in the earlier figures. This is the Cape Bathurst area (70N, 127W) on 27 July 1972. The Canadian Ice Central reports open (4/10) to very open (2/10) pack with many open water areas. Only multi-year ice is present, and surface air temperatures at Sacha Harbor (72N, 125W) were in the range 37-57°F during this time.

