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USE OF ERTS-1 PICTURES IN COASTAL OCEANOGRAPHY IN BRITISH COLUMBIA

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The ERTS-1 colour composite picture of the Vancouver-Victoria region 1007-18365 illustrates very beautifully the value of ERTS data for coastal oceanography. The water of the Fraser River plume which is so clearly visible in the centre of the scene has been of interest to oceanographers on the west coast of Canada for a long time as an easily visible tracer of surface water circulation in the Strait of Georgia. Maps of the plume at different states of the tide and with different river flow and weather were compiled from oblique aerial photographs in 1950 and used in the siting of sewage and other outfalls in the Vancouver area. More recently high level aerial photomosaics have been used to map the plume area, but the plume can spread over distances of 30 to 40 miles and many photographs, with the uneven illumination inherent in wide angle coverage, are needed for the mosaic.

The ERTS satellite gives the first complete view of the plume area. Electronic enhancement of the images shows that the satellite's narrow angle coverage allows very weak surface turbidity features to be made visible to give information on surface currents over a wide area.

Canada, as you know, has its own ground station at Prince Albert and processing centre at Ottawa run by the Canada Centre for Remote Sensing. From the examples I have seen the Canadian colour composites allow coastal features to be more easily distinguished. Ships delayed by a dock strike in Vancouver on September 4, 1972 are clearly visible at anchor in English Bay, and the British Columbia ferries can be seen crossing the Strait of Georgia. Comparing imagery from two dates, in which the ferries show at the same position, verifies that both the ferries and the ERTS-1 satellite are "sun-synchronous".

Although our evaluation has not advanced very far yet, it does seem that ERTS-1 pictures will be extremely useful for the environmental studies that are becoming increasingly important, as well as for some of our continuing oceanographic programs.