PART 7.   SENSOR WEB/TESTBED INITIATIVES

5.   EO-1 ON-BOARD CLOUD COVER DETECTION AND PREDICTION

One of the challenging aspects of earth imaging is the ability to significantly reduce the large cost impact imposed by collecting the images of cloudy, unusable scenes. A cost impact reduction could result from applying one or both of the following two cases:

- Case 1 – For scenes taken, there is an on-board detection capability that can discriminate between clouds, snow, ice, sand, and other types of ground cover and estimate the extent of cloud cover for a scene. Given this knowledge, a significant cost savings could be realized by identifying unusable images on-board and thereby avoid the storage, transmission to ground, and processing of the data.

- Case 2 – Cloud cover extent can be predicted on-board within minutes prior to the taking of an image. Therefore, if the cloud cover is greater than desired for a particular scene, then a decision can be made not to collect that scene but collect an alternant satisfactory cloudless scene on the next orbital pass.

Documentation of efforts to create the above described unified autonomous operations system, using EO-1 as a testbed, can be obtained from the links contained in the Table of Contents for Part 7, Section 5.