shows that the degree of coverage varies with the latitude, being sparse to the south of the Canadian/US border (along latitude 49°N west of Ontario), increasing gradually and then more rapidly to a maximum around 75°N (at which latitude the track reaches its greatest excursion to the north), and quickly dropping to zero north of 75°N. This situation is shown in graphical form on Figure 8, which plots the average number of times in 24 hours that a swath crosses any point at a specified latitude. The lowest curve on Figure 8 indicates that 100 km. swaths cover latitudes south of 66.6°N (the Arctic Circle) less than 0.25 times a day, in other words with an average accessibility interval longer than four days. But in the vicinity of 75°N they average more than one crossing per day (accessibility interval less than 24 hours). The accessibility interval is indicated up the right hand margin of Figure 8.[33]

Obviously the coverage will improve for greater swath widths. Figure 8 shows the coverage for swaths measuring 200, 300, 500, and 1000 km across, each centred on the ground track directly underneath the 75°, 91 minute satellite orbit. The 1000 km swath would have an accessibility interval less than 24 hours over all of Canada, and less than 12 hours for latitudes between 63°N and 78°N.

Figure 8 can be used to estimate the number of satellites that would be required to produce a given accessibility interval at a given latitude. For example, every point on the Arctic Circle would be crossed 2.5 times a day by 1000 km swaths, and 1.25, 0.75, 0.50, and 0.25 times a day by swaths of widths of 500, 300, 200, and 100 km respectively. Therefore, an average accessibility interval of 12 hours or less, achievable with a single satellite capable of surveying a swath of 1000 km, would require two satellites with a swath of 500 km, three with 300 km, four with 200 km, or eight with 100 km.

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[33] The curves of latitude coverage in Figures 8 and 9 are calculated from the geometrical intersections of the left and right edges of the swath with each parallel of latitude. A small correction is necessary for the rotation of the earth, which reduces the coverage slightly for orbits with inclinations less than 90°.