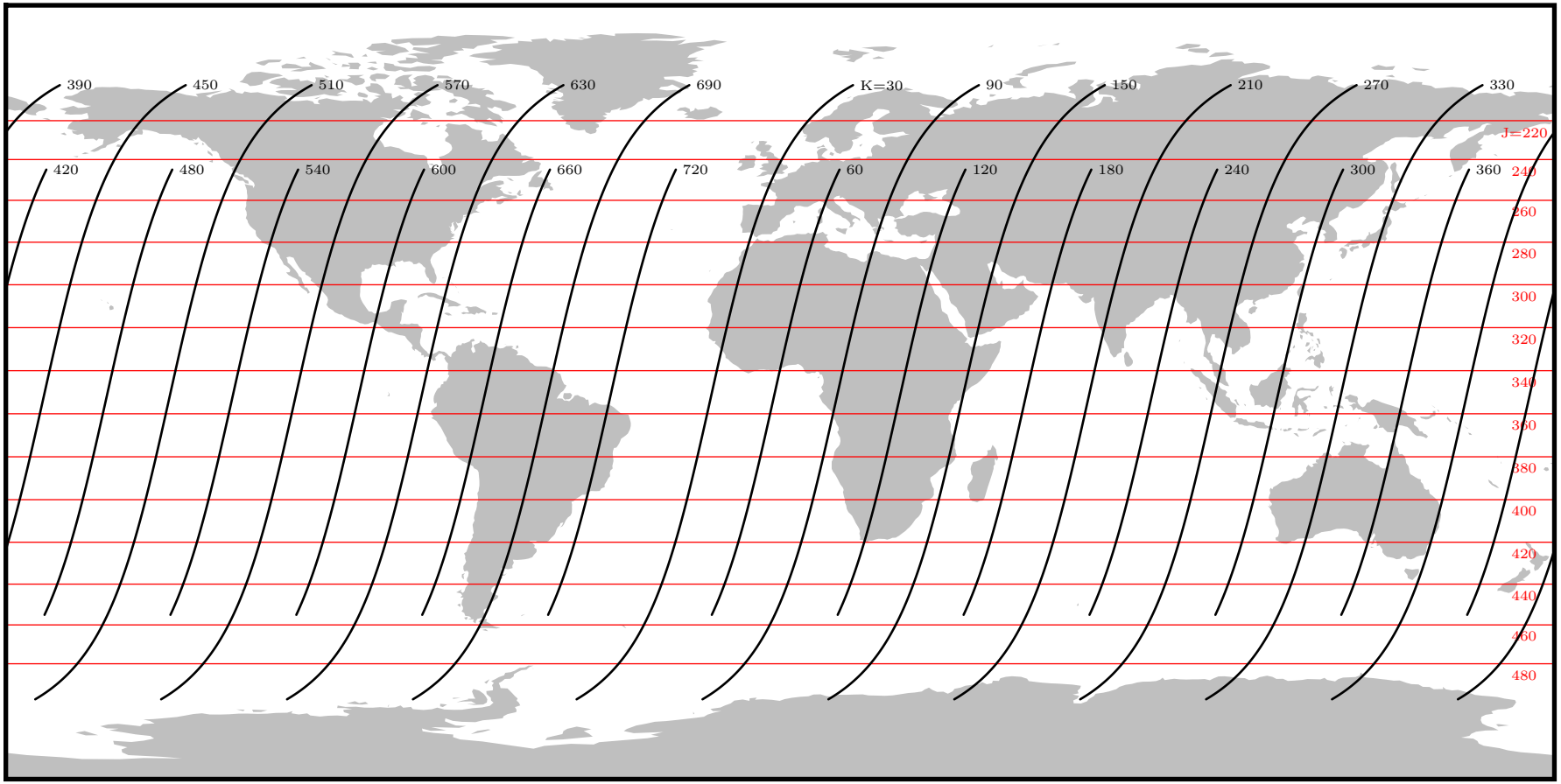
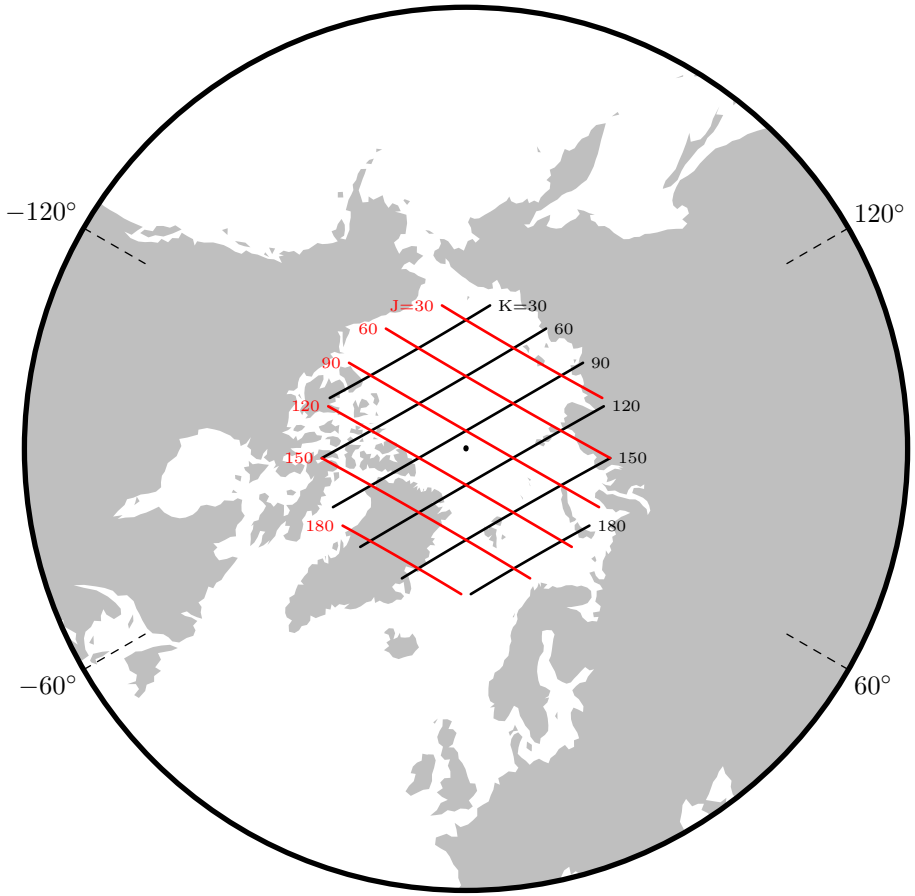


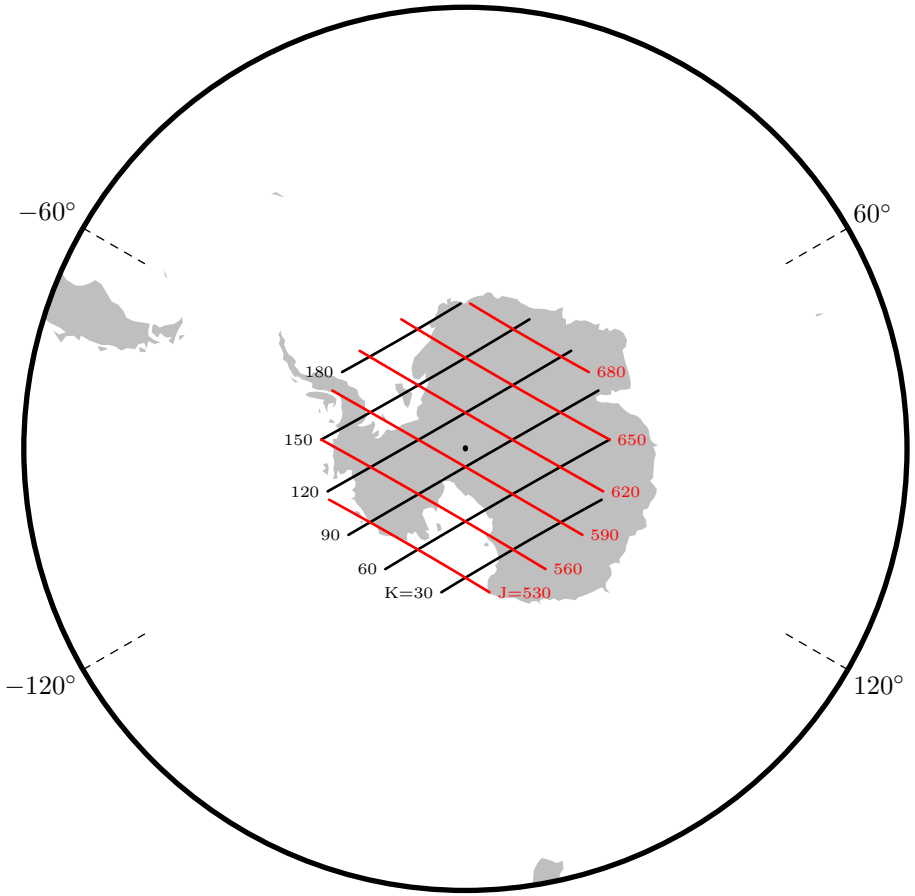
The SPOT Grid Reference System (GRS) defines a grid of nodes, identified by (K, J) coordinate pairs, over the surface of the Earth. The figure above shows nodes in the "intermediate" zone, which extends from the equator to latitudes $\pm 51.5°$, and in the "north" and "south" zones, which further extend to latitudes $\pm 71.7°$. (The two polar zones are shown on the next page.)

In the three central zones, 738 columns K, numbered 1..738 eastward, are derived from 369 orbital ground tracks, numbered 1..369 eastward, that define the daylight portions of a complete, 26-day orbital cycle. Each ground track N yields two columns, $K = 2N - 1$ to the west and $K = 2N$ to the east, corresponding to sensors HRV1 and HRV2, respectively. Put the other way, column K is derived from ground track $\lceil K/2 \rceil$. The ground tracks are evenly spaced around the equator, but the spacing between adjacent columns alternates, for any given latitude, between two values depending on whether the columns are derived from the same ground track or adjacent ground tracks.

301 rows J, numbered 200..500 southward, are at fixed, relatively evenly-spaced latitudes (the inter-row spacing increases slightly towards the equator). Rows 200 and 500 are at latitudes $\pm 71.42907°$; $J = 350$ corresponds to the equator. The intermediate zone contains 154,242 nodes located at the intersections of all columns with the 209 rows numbered 246..454 (maximum latitude: $\pm 51.3127°$). In each of the north and south zones, 17,020 nodes are located at the intersections of 46 rows (numbered 200..245 in the north and 455..500 in the south) with the 370 columns derived from odd-numbered ground tracks only, which is to say only those columns for which $K \bmod 4 \in \{1, 2\}$.

Satellites traverse southward down the daylight portions of ground tracks. As a result, successive scenes within a segment have incrementally increasing row numbers. Column numbers within a segment generally remain constant, except possibly when transitioning between zones.





The polar zones use an entirely different, orbit-independent scheme based on a hexagonal grid. In the north polar zone, 183 evenly spaced columns K, numbered 9..191, lie parallel to the $-60°$ and $120°$ meridians, with K increasing towards the $30°$ meridian. Likewise, 183 evenly spaced rows J, also numbered 9..191, lie parallel to the $-120°$ and $60°$ meridians, with J increasing towards the $-30°$ meridian. 22,591 nodes are located at row/column intersections having latitudes $70.703°$ or greater. Node $(100, 100)$ corresponds to the north pole. Each node is equidistant with all six hexagonal neighbors.

The south polar zone is similar, except that the orientation of rows and columns is reversed, and the 183 rows J are numbered 509..691. Node $(100, 600)$ corresponds to the south pole.

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