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Investigations of the upper polar atmosphere by incoherent scatter plasma line observations

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We have developed an efficient algorithm to identify the electron plasma line in incoherent scatter (IS) radar data. The plasma line is the result of radio wave scattering from Langmuir waves, and information stored in the line is useful in order to resolve some of the ambiguity left from a standard IS data analysis using ion line data. In this presentation, we demonstrate the detection method with the Kalman filter for the plasma line using data obtained with the European incoherent scatter (EISCAT) Svalbard radar, and discuss how the method will contribute to investigations of the upper polar atmosphere.