Now and the future strides of Aurora Computed Tomography

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This talk reviews the development of Aurora Computed Tomography (ACT) we have been working these 20 years and great strides into a 'Generalized Aurora CT (G-ACT)' now underway since 2005. It stems from Syowa and Iceland Aurora Stereo Observation and develops into the Swedish ALIS (Aurora Large Imaging System) multi-point tomography with further possibility of less constrained inversion by the images taken from space by the Japanese REIMEI. The G-ACT further integrates EISCAT and imaging riometer data relevant to precipitating particles in addition to aurora images to infer particle energy spectra and even atmospheric structures and composition. Simulation is now ongoing by modelling the forward problem and then retrieving the assumed spectra by statistical inversion method to formulate the algorithm and to test its feasibility. ALIS team is also successful in comparing aurora luminosity with those estimated by electron energy spectra inferred from concurrent electron density enhancement by EISCAT and this is also in favor of the present approach.