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Untangling the space-time ambiguity of pulsating aurora

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We have investigated the spatiotemporal characteristics of pulsating aurora observed by an all-sky imager located at Poker Flat, Alaska. Pulsating aurora often covers the entire sky with intermixed large and small-scale spatial and temporal variations, such that an observer may find the view quite disorganized compared to other types of aurora. Earlier findings have shown that pulsating aurora can consist of individual patches varying in size where adjacent patches can have slightly different periods and may pulsate out of phase with each other. We analyze a movie (557.7 nm) using a simple, yet robust FFT technique that allows us to determine the scale size dependent variability. Our findings provide observational constrains for the various proposed mechanisms. When plotting the 2D correlation pattern as a function of scale size and time we find a pattern which reveals the period and scale size of the current pulsating auroral patches.