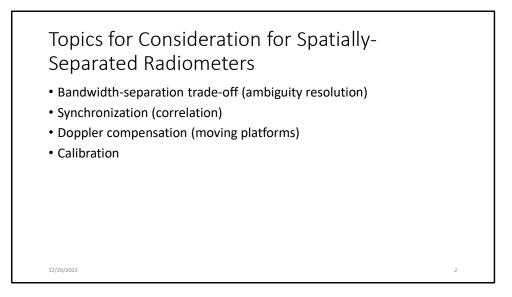
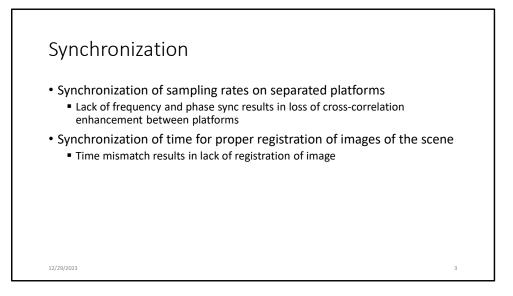


This presentation presents topics germane to radiometers that are physically located on platforms that are separated by many hundreds of meters to several kilometers apart.



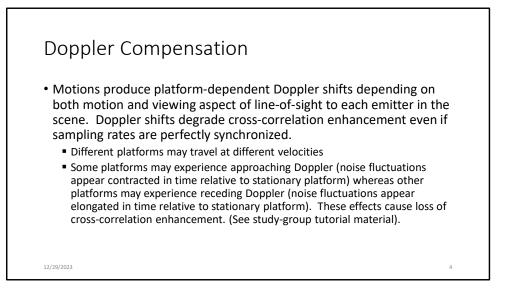
At the 10th meeting of the WG, we glimpsed at the relationship between separation of radiometers and bandwidth required to resolve ambiguities.

Other considerations for spatially-separated radiometers are synchronization of sampling processes, Doppler compensation for moving platforms, and calibration.

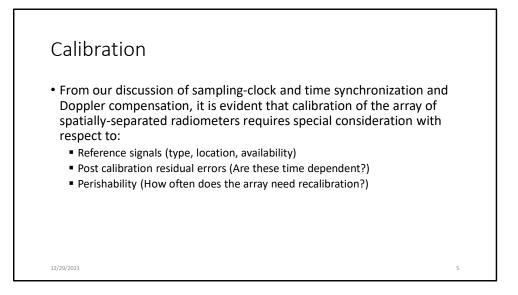


To achieve perfect cross-correlation enhancement of the scene, the sampling clocks on different platforms must have identical sampling periods and zero time offset between clocks. Our WG needs to address how this may be accomplished.

To geolocate the image, the measurement of each pixel must be linked to a common time. Any offset between times will attribute different positions to elements in the scene and result in smearing of the pixels.



Even if sampling rates are perfectly synchronized, moving platforms require Doppler compensation for their motions. Compensation is a computationally-intensive undertaking because for a given platform, every emitter in the scene is at a different viewing aspect to that platform's radiometer. Also, a given emitter in the scene presents different Doppler to radiometers on different platforms because the viewing angles to each platform are different and the motions of the platforms themselves may be different. For example, that given emitter's radiation may be shifted higher in frequency for an approaching platform and shifted lower in frequency for a receding platform. If not compensated, the crosscorrelation between these platforms will be degraded.



Clearly, calibration of an array of spatially-separated radiometers requires special consideration.

One consideration is the type of reference source used. Is the source monochromatic? Polychromatic? Noise-like? Another consideration is the location of the source. Is there a common source on the ground that illuminates all radiometers? Must there be a set of spatially dispersed sources that illuminate all the radiometers in the array? Or must reference sources exist at each radiometer location? Should we have a combination of ground-based and platformbased calibrators?

What is the magnitude of post-calibration residual errors? Do these errors grow with time? If so, at what time intervals does the array need recalibration because the current calibration is not acceptable?