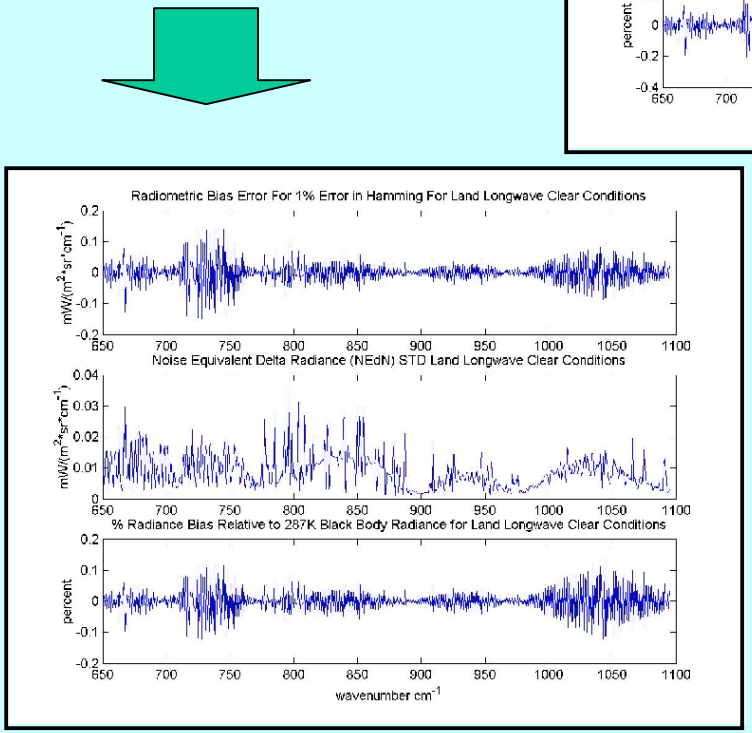
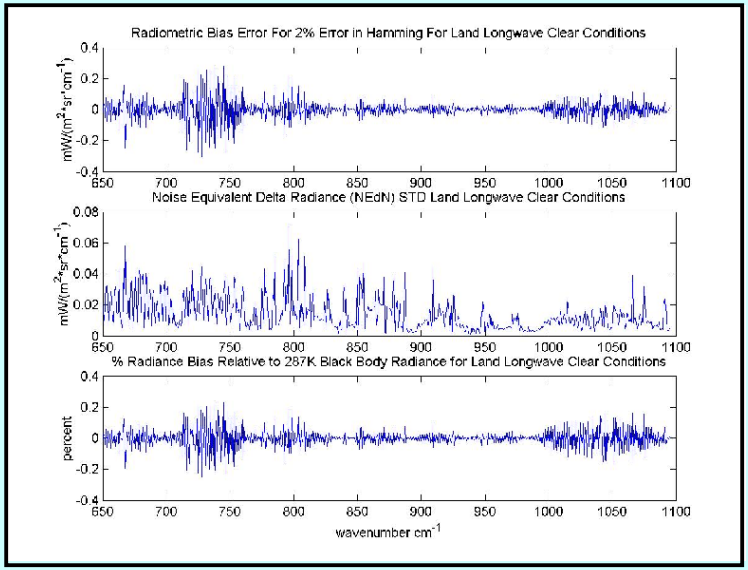
ILS Knowledge & Apodization

Radiance Error 10 Times Smaller for Hamming Apodized Case (Long Wave Band)

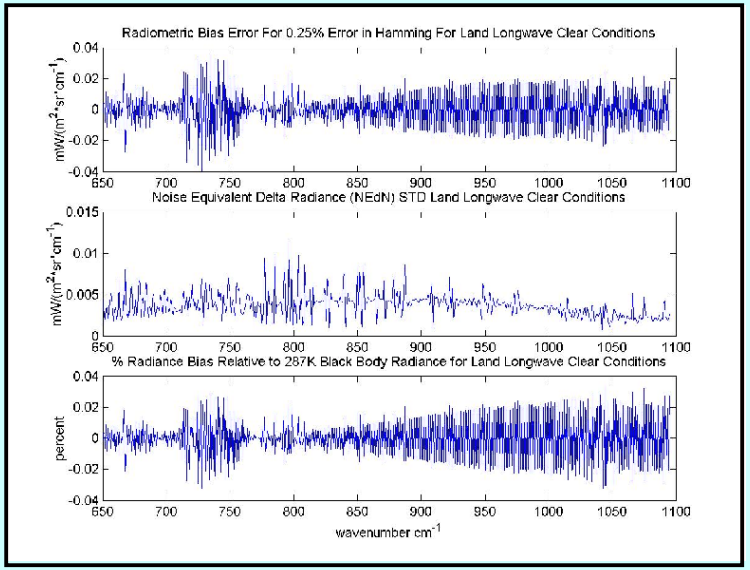
1% ILS Error Yields 0.1% Radiometric Bias (worse case)





2% ILS Error Yields 0.2% Radiometric Bias (worse case)

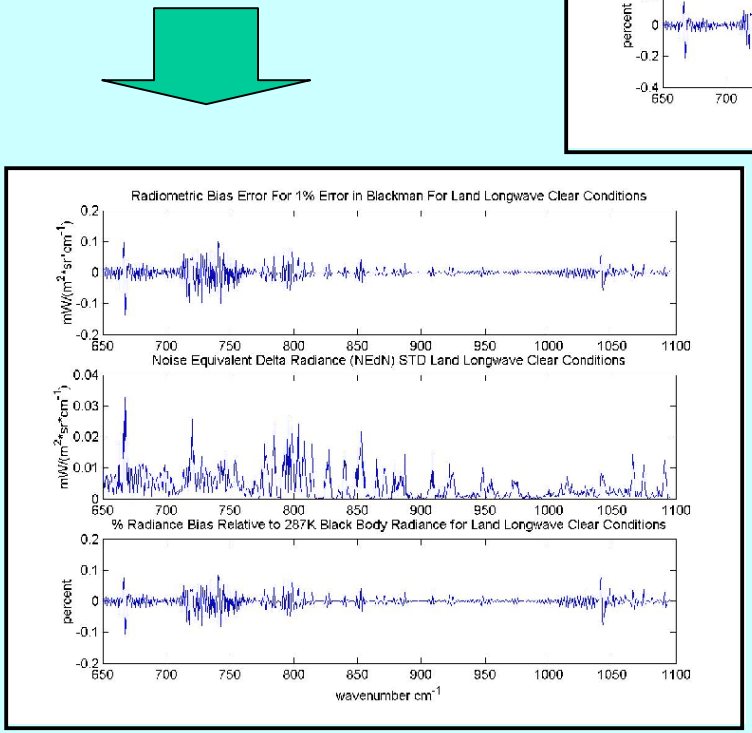
0.25% ILS Error Yields 0.025% Radiometric Bias (worse case)

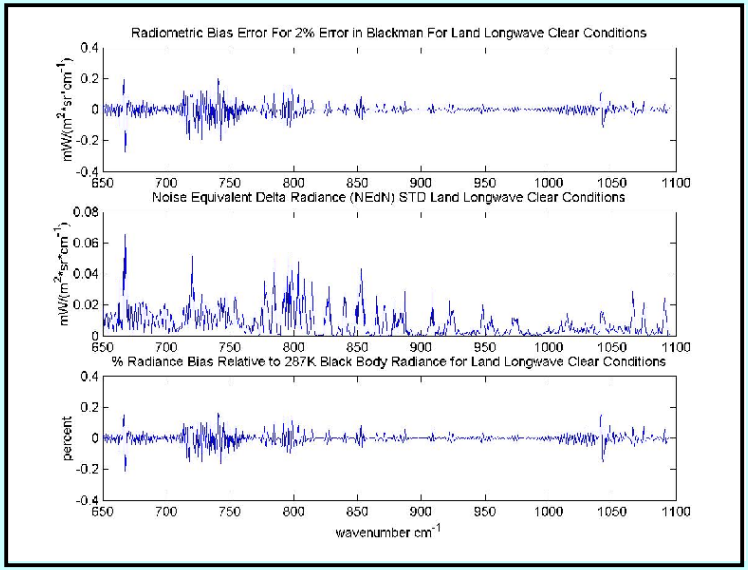


ILS Knowledge & Apodization

Radiance Error 10 Times Smaller for Blackman Apodized Case (Long Wave Band)

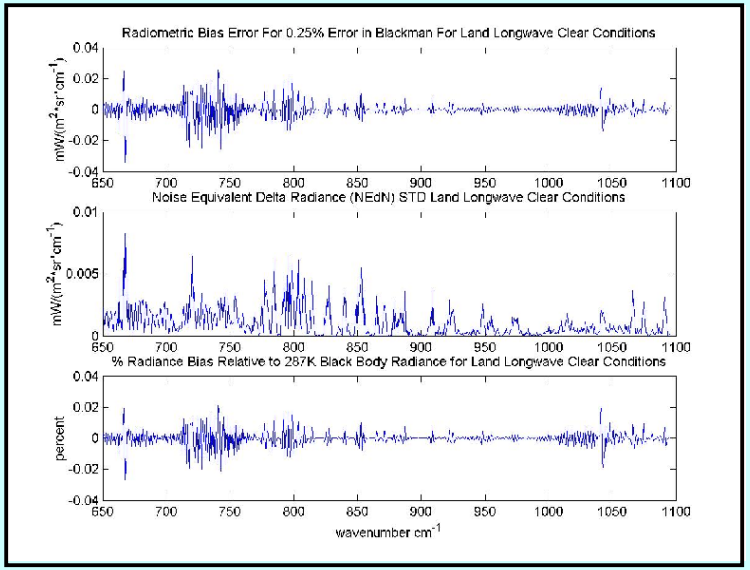
1% ILS Error Yields 0.1% Radiometric Bias (worse case)





2% ILS Error Yields 0.2% Radiometric Bias (worse case)

0.25% ILS Error Yields 0.025% Radiometric Bias (worse case)

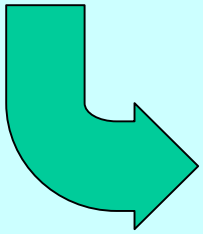


Conclusions from Study

109 sets of plots evaluated

- **Apodization Effects**
  - Use of Hamming or Blackman-Harris apodization function significantly reduces the sensitivity to ILS errors when an optically band limited signal is processed through an interferometer (~10 times better)
  - Spectral sidelobes contribute significant error in the unapodized case due to interaction with the interferometer optical filter band edge
- **Scene Effects**
  - Clear scenes are most stressing case
  - Cloudy scenes can tolerate almost twice as much ILS error due to the lower radiance present in these cases

Recommended ILS Tolerance for Hamming or Blackman Type ILS



- **Recommended FWHM ILS Specification**

Band	Recommended FWHM Uncertainty	Radiometric Bias Error
LW	<1.5%	0.11% max
MW	<1.5%	0.15% max
SW	<3.0%	0.15% max