The New Hemispheric IG Index, IGNS

- IGNS and IG show similar ~11 solar cycle variation.
- IGNS is similar for both the Northern and Southern hemispheres.
- Monthly IGNS show greatest differences over Northern and Southern Hemisphere during high and low solar activity periods.
- Low Solar Cycle index depletions are unique to IGNS calculation over Southern Hemisphere.

CCIR-66 Model-Data Comparison, Single Station Examples

- Model predictions with IG show unrealistic sudden foF2 depletions during the low solar activity period.
- Low solar activity predictions are in better agreement when using IGNS over both hemispheres.

Table 2: Average RMS% of CCIR-66 foF2 prediction errors with IG or IGNS as solar cycle input

- On average, CCIR-66 Model predictions are reduced by ~1.2% when using IGNS in place of IG, and by ~1.0% in place of IG.
- The reduced predictions errors show for low and high solar activity conditions.
- At individual stations, prediction errors reduced by 2.2-4.1% and largely over Northern mid-latitudes when using IGNS instead of IG.

Conclusion/Future Work

- Overall, using IGNS reduces both CCIR-66 and URSI-88 foF2 model predictions up to 1.2% more than when using IG or IGNS.
- Prediction errors reduced up to 4.2% at individual stations largely reduced over Northern mid-latitudes.
- Using IGNS leads to model predictions which better describe foF2 variation specific to a particular region of the globe, such as the annual and semi-annual foF2 variations.
- Compatibility of IG with either CCIR-66 or URSI-88 is unimportant when using a 12-month averaged index but is important when using the monthly indices.
- Future work pertains to long-term prediction of IGNS.