

## Ionospheric model

### Day conditions

<u>With MSP</u>	<u>No MSP</u>
$N_e$	$N_e$

### Night conditions

<u>With MSP</u>	<u>No MSP</u>
$N_e$	$N_e$

## Artificial heating

Date  
Time  
Location  
Ap index  
F10.7 flux

Neutral densities O, O<sub>2</sub>, N<sub>2</sub>  
Neutral temperature T<sub>n</sub>

MSISE-90

Earth's magnetic field

Dipole approximation

Frequency  
ERP  
Polarization

Heating radio wave

## Modelling during heating

1. Initially  $I(h_0) = ERP$
2. Then find  $T_e$  for  $Q(T_e) - L(T_e) = 0$
3. Compute plasma refractive index
4. Compute intensity by  $I(h+1) = I_0 - dl(h) - dl(h+1)$
5. Repeat until  $T_e$  converges

$T_e$  day conditions

With MSP

No MSP

$T_e$  night conditions

With MSP

No MSP