The forward tree

Outputs

Observables

Viewer Position

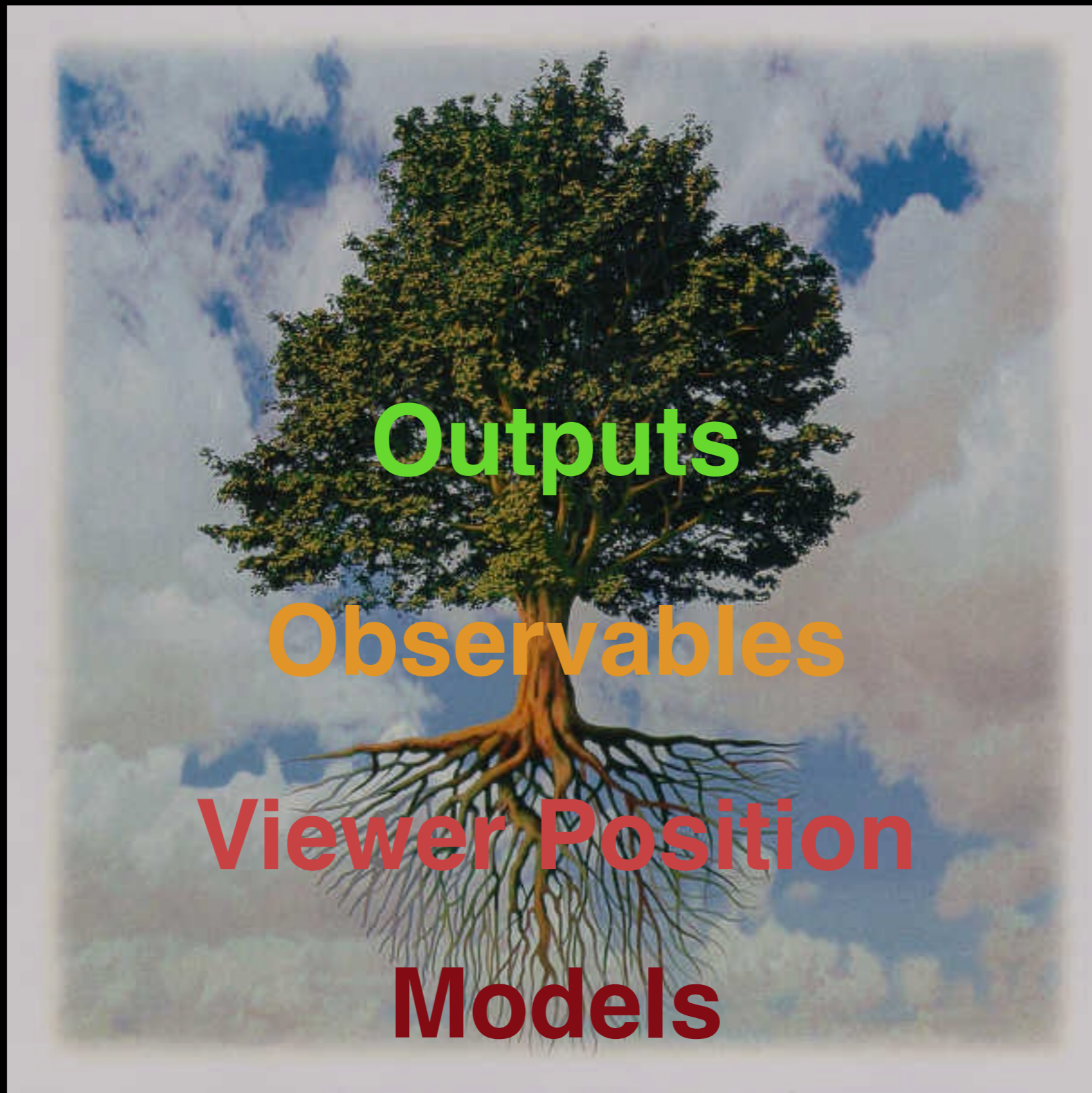Models

The forward tree

Models

r, theta, phi --> plasma parameters

- **Cavmorph**: global streamer with cavity

  - Ne, T, Pres

- **Giblow/Liteslow**: spheromak, with/without global background in equilibrium

  - Ne, T, Pres, Br, Btheta, Bphi

- **Lowhund**: Cartesian flux rope, kluged into spherical axisymmetric

  - Ne, T, Pres, Br, Btheta, Bphi

- **PFSS:** global potential field with hydrostatic background

  - Ne, T, Pres, Br, Btheta, Bphi

- **Datacube:** numerical -- input **your simulation results** here!

Viewer Position

Latitude, longitude, plane-of-sky roll

- **GRIDS**: Plane of sky (POS) positions for outputs

- **LOSINT**: for each POS position, determine array of points along the line of sight (LOS)

Observables

- **Plane of sky parameter**: e.g. Ne, T, Pres, Ptot, vel, Br, Btheta, Bphi, Bx, By, Bz, Bpos, beta, r, theta, phi

- **pB (also total brightness)**

- **XRT**

- **EUV (AIA, EUVI, EIT, EIS)**

- **CoMP I, Q, U, V, Pol, Vol**

Outputs

- **Plane of sky plots:** can adjust field of view, resolution, intensity max/min, etc.

- **Carrington maps:** can adjust start/stop point, resolution, intensity max/min, etc.

- **User-defined points:** can be point, array, matrix

- **Structure containing observable:** QuantMap

- **Structure containing plasma parameters:** ModSolStruct

Mapping to SSWIDL codes

- **Models**: directory MODELS

- **Viewer Position**: directories GRIDS, LOSINT

- **Observables**: directory OBSERVABLES

- **Outputs**: directories MAPS, PLOTS