NASA Space Radiation Risk Tools

NASA Human Research Program
Space Radiation Program Element

Division of Space Life Sciences
Universities of Space Research Association

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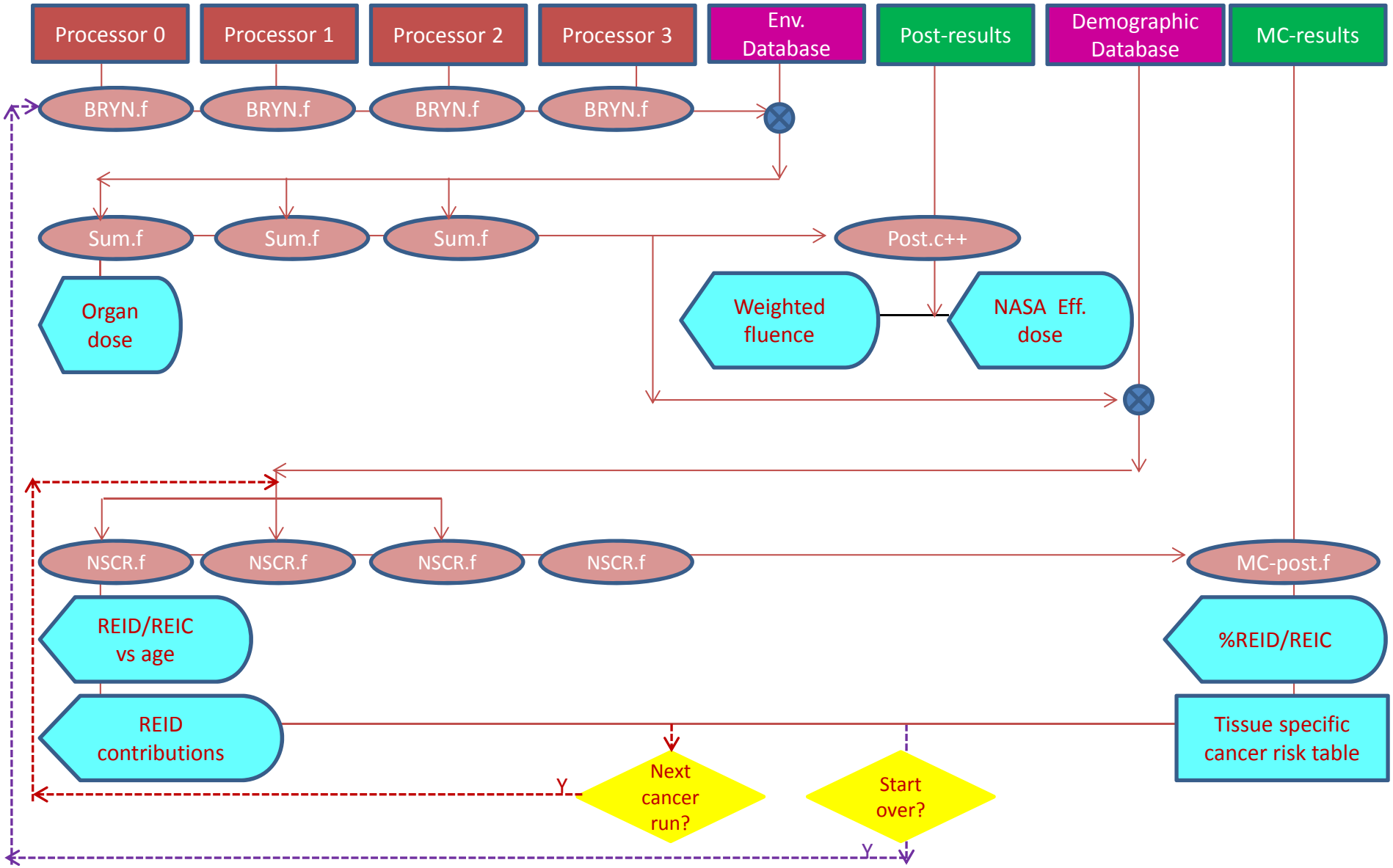
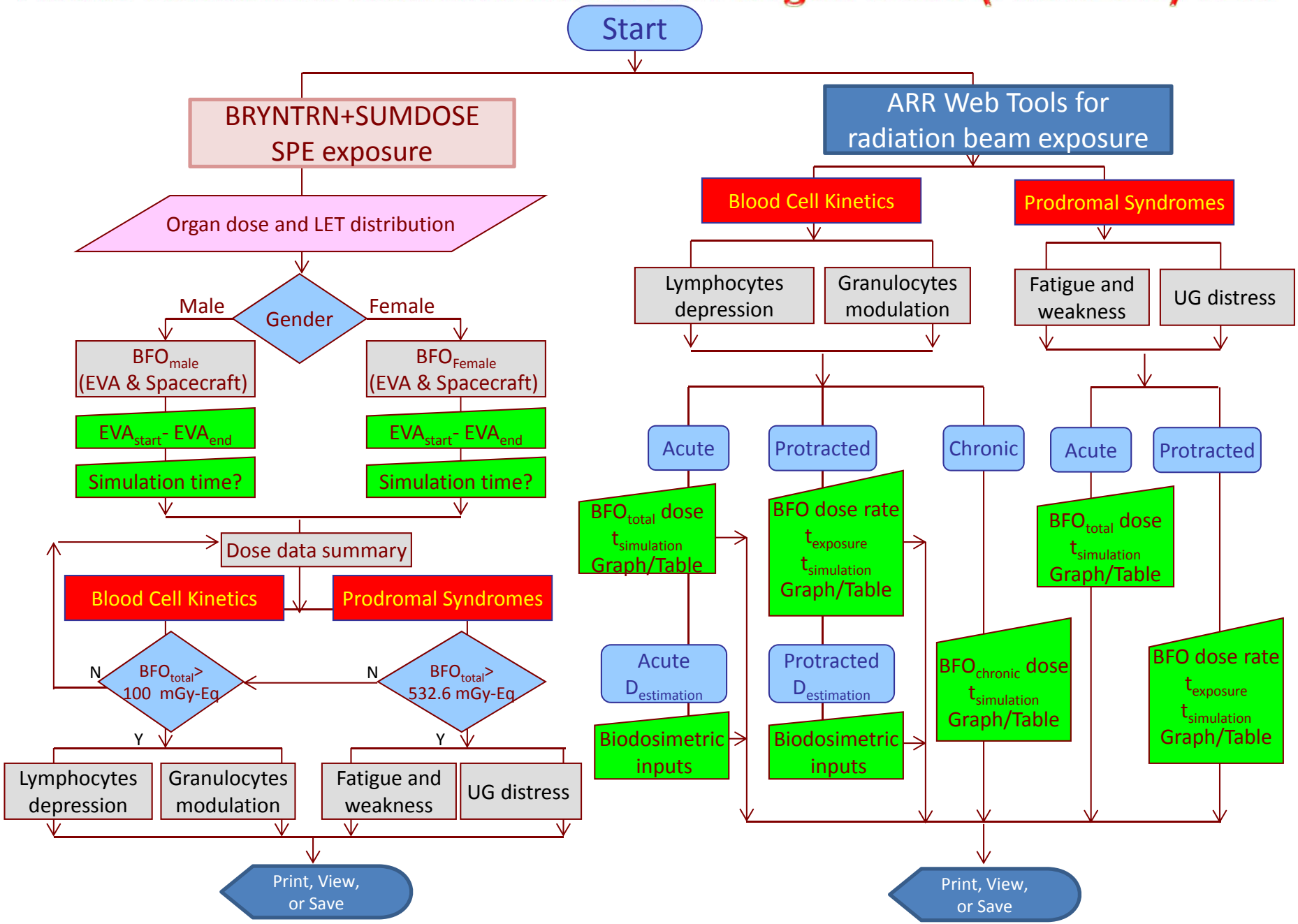
- **NSCR**: **N**ASA **S**pace **C**ancer **R**isk
  Projection of cancer risk from exposure to space radiation
- **ARRBOD**: **A**cute **R**adiation **R**isk and **B**RYNTRN (Baryon Transport) **O**rgan **D**ose
  Organ dose projection and acute radiation risk calculation from
  exposure to SPE (solar particle event)
- **GERMcode: G**CR (Galactic Cosmic Ray) **E**vent-based **R**isk **M**odel (GERM) code
  Basic physical and biophysical properties for an ion beam, and
  Biophysical and radiobiological properties for a beam transport to the target
  in the NSRL (NASA Space Radiation Laboratory) beam line
- **RITRACKS**: **R**elativistic **I**on **TRACKS**
  Simulation of heavy ion and δ-ray tracks in biomolecules
- **NASARTI: NASA R**adiation **T**rack **I**mage
  Modeling of the effects of space radiation on human cells and tissue
  by incorporating a physical model of tracks, cell nucleus, and DNA damage foci with
  image segmentation for the automated count

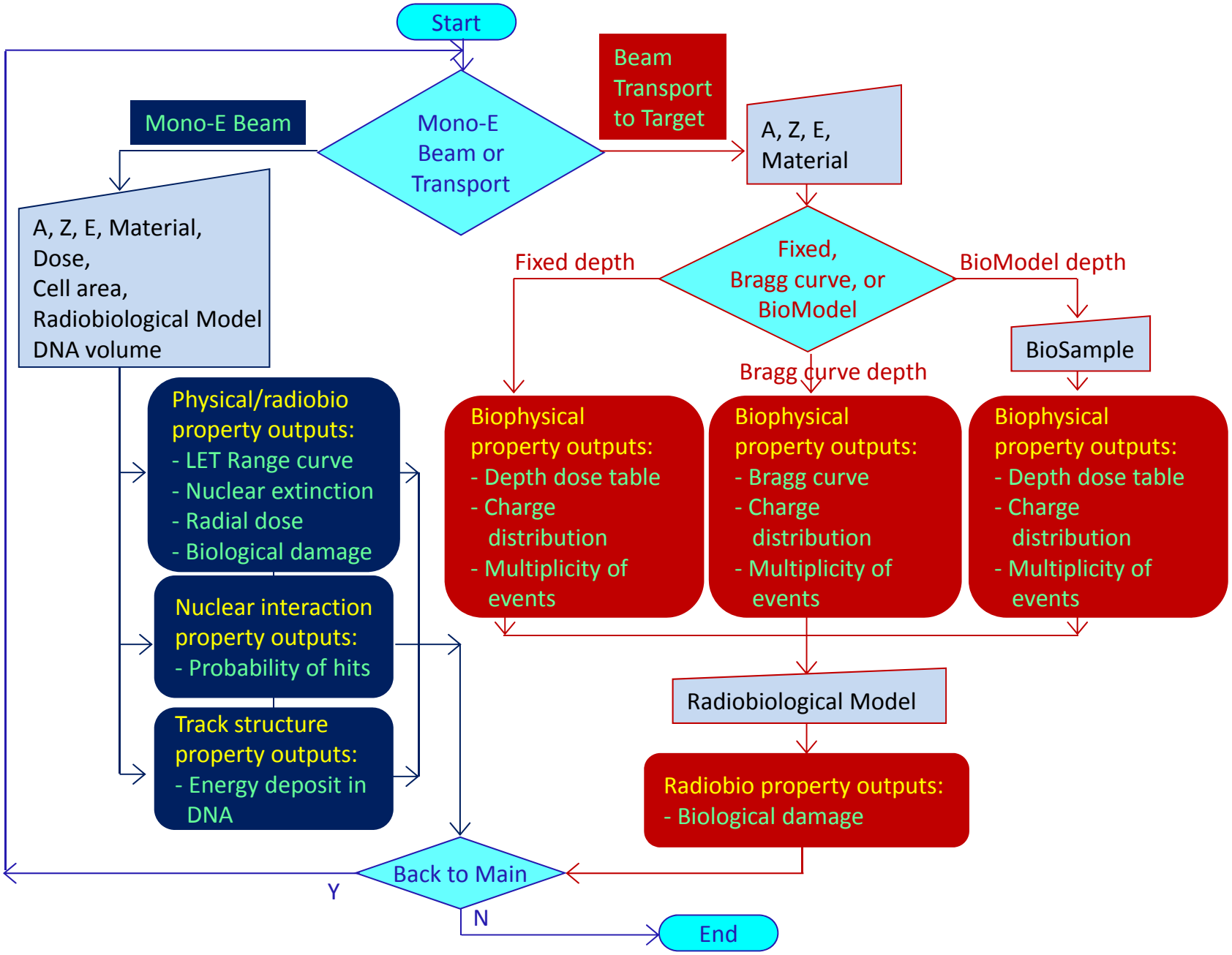
NASA Space Cancer Risk (NSCR) v1.0



Acute Radiation Risk and BRYNTRN Organ Dose (ARRBOD) v2.0

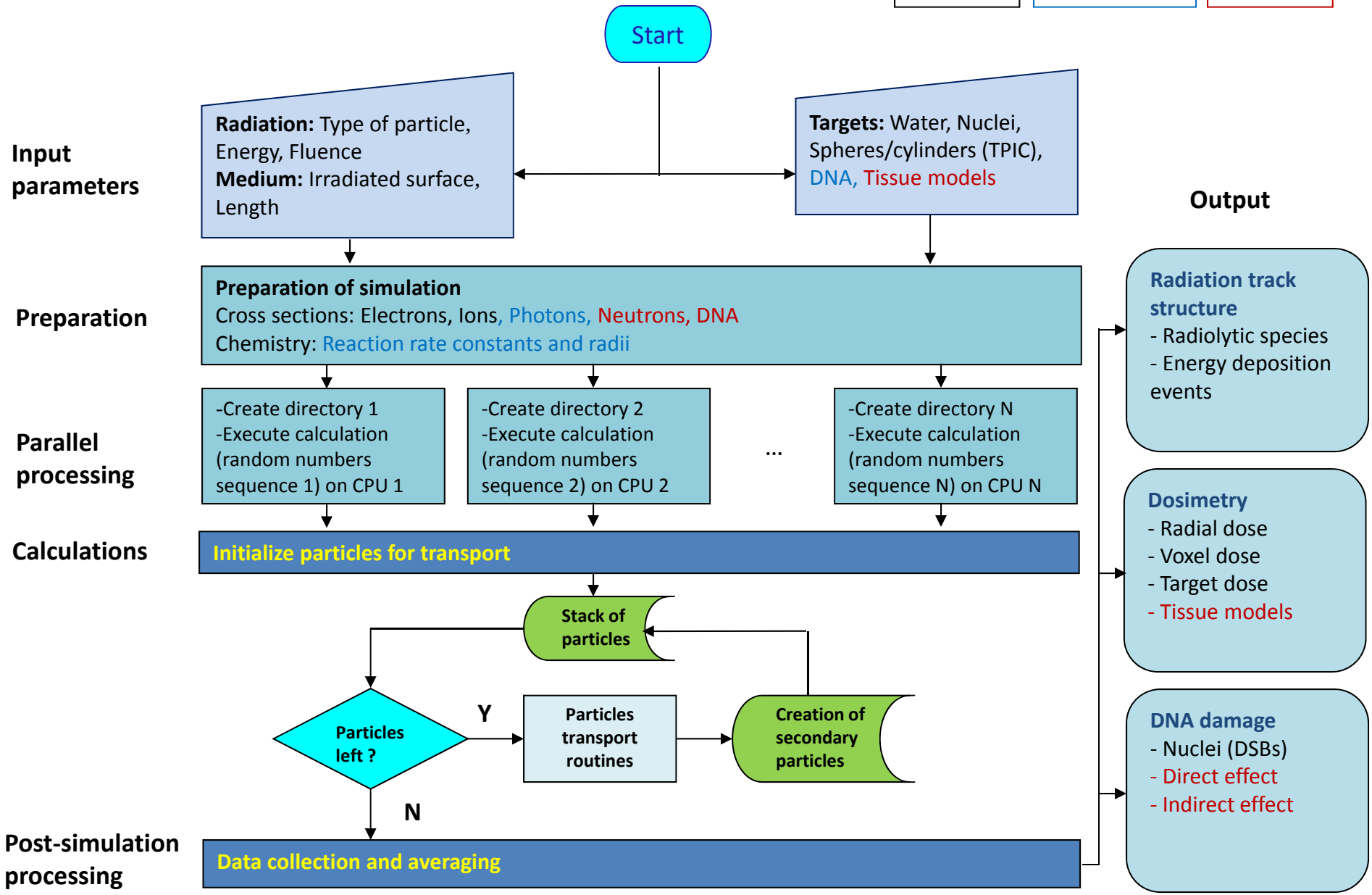


GCR Event-based Risk Model (GERM) v1.1



RITRACKS v3.0

Version 3 (actual) | Version 4 (in progress) | Version 5 (planned)



NASA Radiation Track Image (NASARTI) v3.0