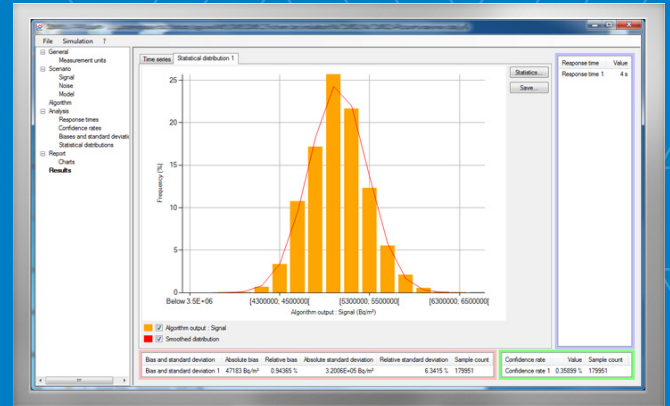# MIRION
TECHNOLOGIES

RAMSYS™

SIMS2™

SIMulation Software

The SIMS2 has been developed for algorithm response simulation for RAMSYS measurement channels.

DESCRIPTION

This software is a powerful tool designed to provide a measurement channel/algorithm combination:

- The evolution of measurement conditions over time (activity concentrations, dose rate, flow rate...)
- The measurement channel detection assembly (detection efficiencies, sensitivities to electronic noise and nuclear backgrounds...)
- The evolution over time of the measurements for a channel/algorithm combination under a set of conditions

FEATURES

- ✔ Response time evaluation
- ✔ Statistical and distribution evaluation
- ✔ Confidence rate evaluation
- ✔ User friendly training tools
- ✔ Ergonomic, user friendly, Windows® based interface

SIMS2™ SIMULATION SOFTWARE

STANDARD FUNCTIONS

A simulation contains six functional groups of parameters Parameters saved can be entered manually or read in a file. These groups of parameters are as follows:

- **General:** name of the simulation, units used throughout the simulation, origin of the measurements, etc.
- **Scenario:** description of the evolution of the measurement conditions over time, including:
  - Simulation duration
  - Evolution over time of the physical quantities which
  - influence the measurements
  - Events which influence the measurements
- **Model:** description of the detection assembly characteristics including:
  - Detection efficiencies of the radioisotopes
  - Sensitivity to the different nuclear backgrounds
  - Intrinsic and electronic noise
- **Algorithm:** description of the algorithm parameters (accessed from the MASS2 software)
- **Analysis:** description of the statistical analyses to be performed:
  - Definition of the confidence rates to be evaluated
  - Definition of bias and standard deviation
- **Reports:** description of the automatic reports to be made during or at the end of the simulation:
  - Numerical and/or graphical printing
  - Data storage

## SIMULATION BASED ON REAL MEASUREMENTS

It is possible to perform simulations in which the input values provided to the algorithm are not simulated values but are real measurements stored in ASCII files.

REPETITION OF IDENTICAL SIMULATIONS

The same event can be performed several times with this SIMS2 functionality. This is especially advantageous when evaluating response times. Indeed, if several identical simulations using different pseudo-random number sequences are performed, reliable statistical information can be obtained about the response times.

RUNNING A SEQUENCE OF SIMULATIONS

The SIMS2 software allows independent simulations to be run sequentially and automatically using a "batch" method.
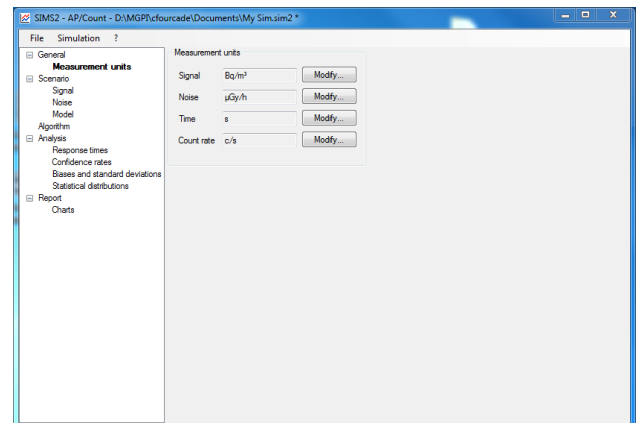
Example of general tab of parameters

MIRION TECHNOLOGIES