

PyDRAMA

Silvia Sanvido

21/03/2019

pyDRAMA - Installation



📁 > Silvia Sanvido > DRAMA-3.0 > TOOLS >

Name	Date modified	Type	Size
📁 ARES	18/03/2019 17:47	File folder	
📁 CROC	18/03/2019 17:48	File folder	
📁 CSTATE	18/03/2019 17:48	File folder	
📁 MIDAS	18/03/2019 17:47	File folder	
📁 OSCAR	18/03/2019 17:47	File folder	
📁 python_package	18/03/2019 17:48	File folder	
📁 SARA	18/03/2019 17:48	File folder	
📄 components_database.xml	18/03/2019 12:10	XML Document	17 KB
📄 material_database.xml	18/03/2019 12:10	XML Document	14 KB
📄 propulsion_database.dat	18/03/2019 12:10	DAT File	2 KB
📄 subsystems_database.xml	18/03/2019 12:10	XML Document	228 KB

```
$ pip3 install <DRAMA installation directory>/TOOLS/python_package
```



pyDRAMA - Overview



ares

```
from drama import ares
```

midas

```
from drama import midas
```

oscar

```
from drama import oscar
```

sara

```
from drama import sara
```

Run mode

```
.run()
```

```
.run_monte_carlo()
```

```
.run_monte_carlo_with_Wilson_confidence()
```

Plot results

```
.plot_histogram()
```

```
.plot_cdf()
```

```
.plot_heatmap()
```

return

Annual collision probability

return

total number of impacts

return

lifetime, final state

return

total casualty for the x-section, total casualty risk

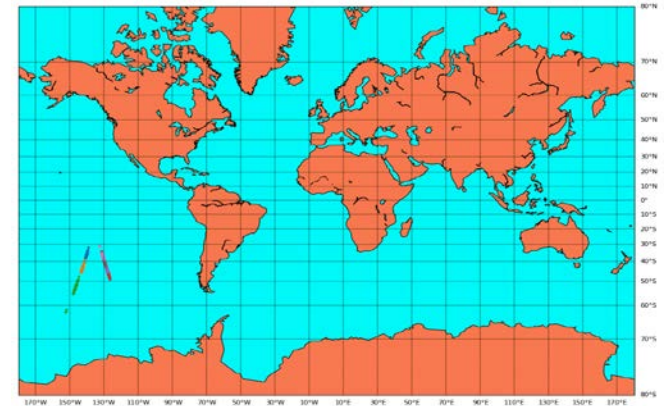
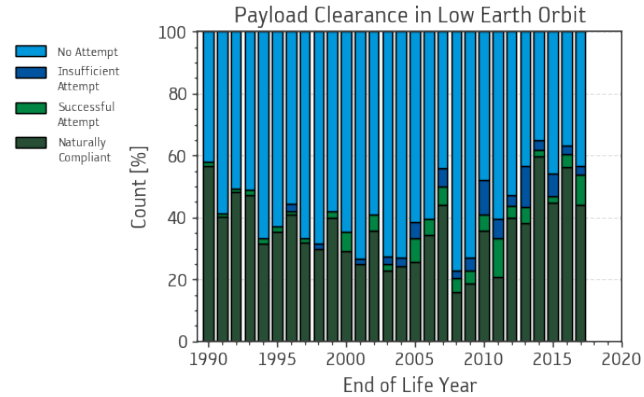


https://sdup.esoc.esa.int/drama/python_package_docs

pyDRAMA - Applications



- Lifetime computation for ESA environmental report.
- Lifetime computation for environmental capacity analysis.
- Find the optimal ground track in terms of station coverage to perform a controlled re-entry. pyDRAMA was used to check if, with burn uncertainties, it would fit in the South Pacific Ocean Uninhabited Area (SPOUA).



THANKS!
QUESTIONS?