# **Extension of 3DView and PropTool to comets**

#### **3DView:**

1) ingest available SPK for comets (1300 identified by Laurent)

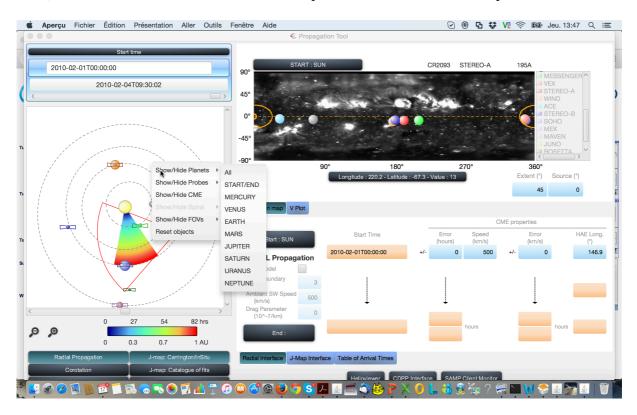
2) implement the possibility to send a unique request to search for their availability/inside Mars orbit for a given period of time

3) implémentation d'un service permettant de chercher tout corps passant entre deux dates à une distance d'un corps central défini (cf. petit client dans 3DView développé par Laurent)

🛓 Manage sc	ene	
Start time 2	016/02/19 15:00:00 Coordsys J2000	Center Sun V
Stop time	020/02/26 15:00:00 Step 2	54178 seconds Stars all vm<6
Spacecraft	Natural bodies Search in Region	
CenterSun	Distance(km) 30000000 Searct	Found 471 objs. Select All/None
Search resu	t	
Body	Туре	Select
1200007	COMET	
1200008	COMET	$\overline{\mathbf{v}}$
1200009	COMET	
1200010	COMET	$\checkmark$
1200011	COMET	$\checkmark$
1200096	COMET	$\checkmark$
1200097	COMET	$\checkmark$
1200098	COMET	$\checkmark$
1200099	COMET	$\checkmark$
1200104	COMET	
1200105	COMET	
1200108	COMET	
1200109	COMET	
1200110	COMET	
1200136	COMET	
1200137	COMET	
1200138	COMET	
1200139	COMET	
1200140	COMET	
1200141	COMET	V

## **PropTool:**

0) Enable the user to access to the developments for comets in the PropTool



#### Show/Hide Comets -> All

- ➔ Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)
- $\rightarrow$  Those within a particular heliospheric latitude range (+/- 20 degrees) with their names
- 1) Implement the possibility to visualize comet trajectories and positions in and out of ecliptic plane

## Show/Hide Comets -> All

- Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)
- $\rightarrow$  Those within a particular heliospheric latitude range (+/- 20 degrees) with their names

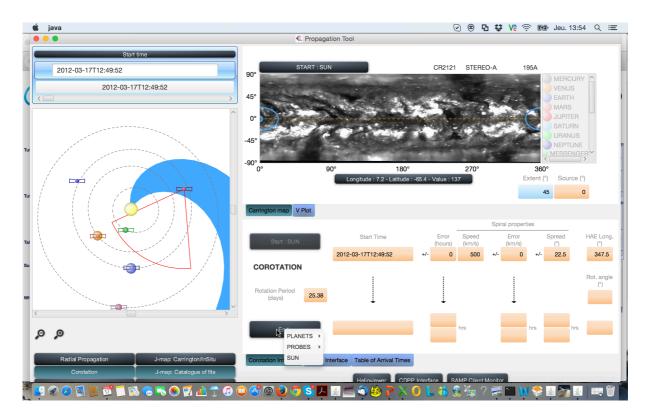
Left panel in above illustration ; enable the user to choose if he/she wants to visualize their (projected) trajectories only in ecliptic plane or both in ecliptic plane and out of ecliptic plane (in the latter case split the window in two windows)

2) 1') Enable the prediction of CME/CIR arrival time only for comet close to the ecliptic plane (+/- 20°)

Start time	Target	ť	t'min(∆t)	t'max(Δt)	t'min(ΔV)	t'max(ΔV)	φEnd(t')- φStart(t)	r(End-Sun)	φCME(t)	
2010-02-01T00:00:00			(hrs)	(hrs)	(hrs)	(hrs)	(°)	(AU)	(°)	(°
2010-02-04T09:30:02		2010-02-01T00:0	0	0	0	0	0	0	146.88	4
		2010-02-02T06:4	0	0	0	0	18.52	0.37	146.88	4
1	VEX	2010-02-03T12:0	0	0	0	0	180.3	0.72	146.88	4
		2010-02-04T07:4	0	0	0	0	53.1	0.96	146.88	4
		2010-02-04T08:4	0	0	0	0	348.57	0.97	146.88	4
		2010-02-04T08:4	0	0	0	0	348.31	0.97	146.88	4
		2010-02-04T12:2	0	0	0	0	277.85	1.02	146.88	4
	SOHO	2010-02-04T08:3	0	0	0	0	348.44	0.97	146.88	4
$I = I = \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^$	MEX	2010-02-06T16:3	0	C)	0	0	346.27	1.64	146.88	4
$ = \langle \langle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle$	ROSETTA	2010-02-05T16:5	0	0	0	0	352.21	1.36	146.88	4
	CASSINI	2010-03-05T19:1	0	0	0	0	33.65	9.47	146.88	4
	Planets									
		2010-02-02T12:3	0	0	0	0	79.67	0.44	146.88	4
		2010-02-03T12:0	0	0	0	0	180.31	0.72	146.88	4
		2010-02-04T09:3	0	0	0	0	348.43	0.98	146.88	4
		2010-02-06T16:3	0	0	0	0	346.27	1.64	146.88	4
		2010-02-18T06:4	0	0	0	0	191.8	4.99	146.88	4
		2010-03-05T19:1	0	0	0	0	33.71	9.47	146.88	4
		2010-04-11T13:4	0	0	0	0	209.82	20.09	146.88	4
	NEPTUNE	2010-05-15T22:4	0	0	0	0	179.68	30.02	146.88	4
0 27 54 82 hrs										
Ð										
0 0.3 0.7 1 AU	Given defin	ed width, targets in re	d are impact	ed by CME						
Radial Propagation J-map: Carrington/InSitu		face J-Map Interface								
Corotation J-map: Catalogue of fits			1							

Show/Add Comets to be selected by users from the lists below

- → All (maybe in a different window if this option is selected)
- → Only those impacted
- → Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)
- $\rightarrow$  Those within a particular heliospheric latitude range (+/- 20 degrees) with their names

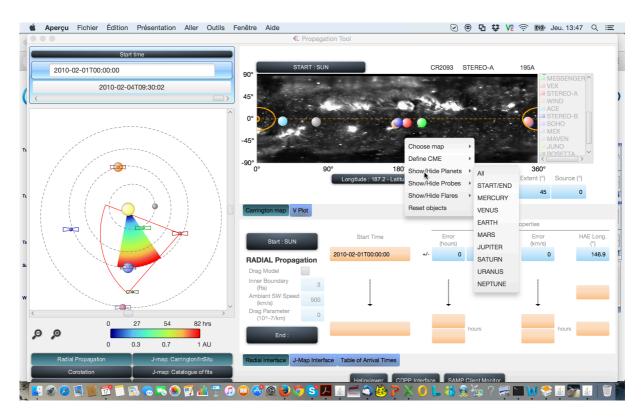


Show/Add Comets to be selected by users from the lists below

- -> All
- ➔ Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)

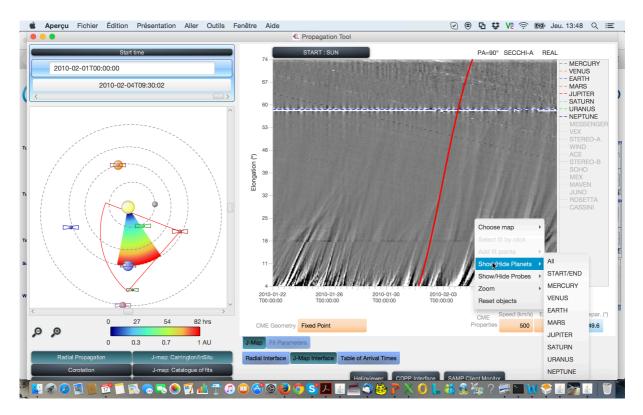
 $\rightarrow$  Those within a particular heliospheric latitude range (+/- 20 degrees) with their names

3) Implement the possibility to visualize comet footprints onto Carrington maps (for comet trajectories in and out of ecliptic, user choice)



## Show/Hide Comets -> All

- ➔ Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)
- $\rightarrow$  Those within a particular heliospheric latitude range (+/- 20 degrees) with their names
- 4) Implement the possibility to visualize comet positions in J-maps (for comet trajectories in and out of ecliptic)



#### Show/Hide Comets -> All

- → Those at a given distance from a central body that could be the Sun or a planet (use of the service implemented in 3DView)
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Start PM 6? - PM 18