

Figure 1. Flow diagram of the tools used in and alerts issued by the COMESEP Alert System.

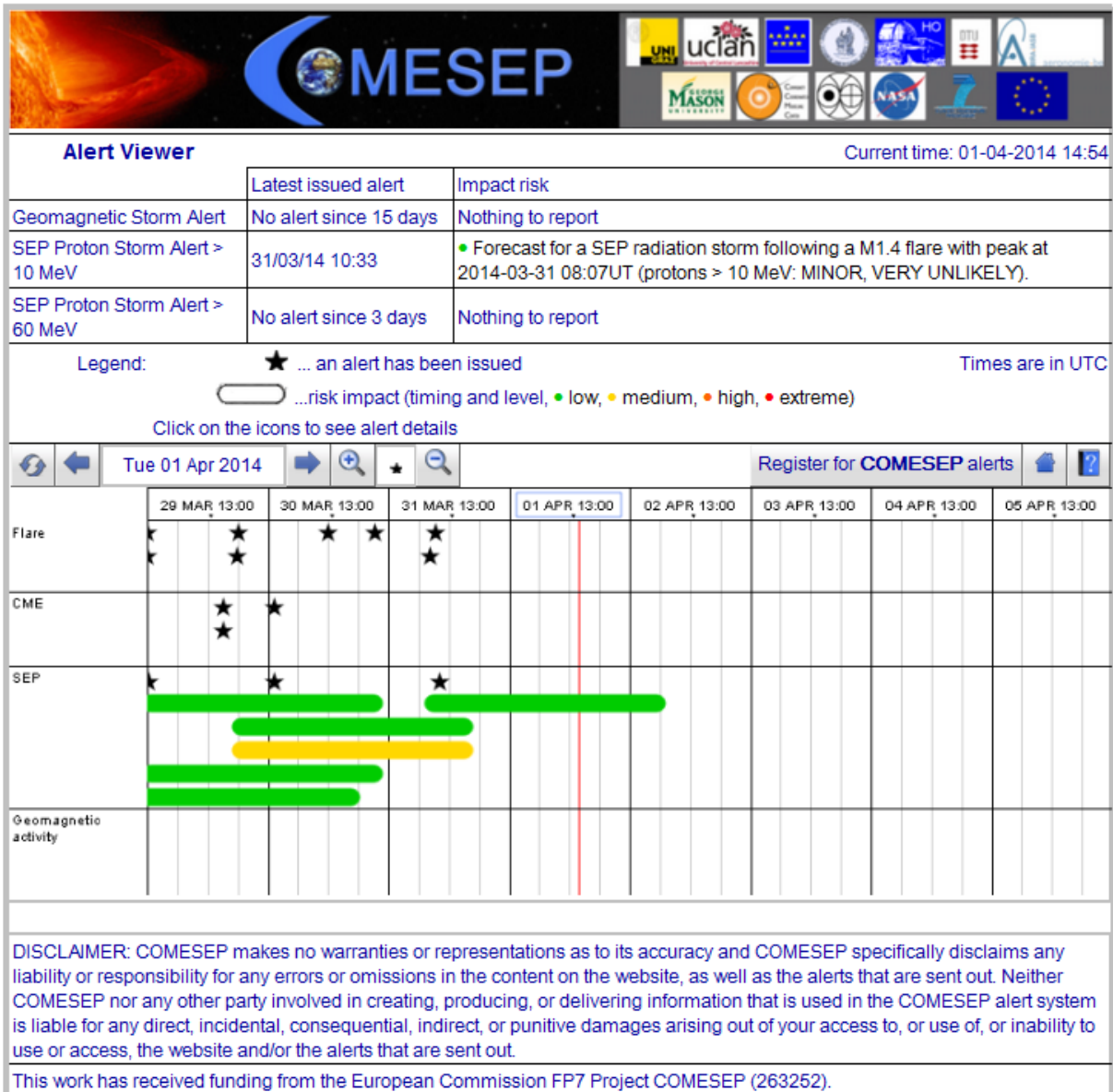


Figure 2. The layout of the COMESEP Alert System (<http://www.comesep.eu/alert/>).

Arrival of CME / Likelihood of occurrence	Ongoing (100%)	L	M	H	H	E	E
	Very likely (90-100%)	L	M	H	H	E	E
	Likely (70-90%)	L	M	M	H	H	E
	Possible (40-70%)	L	L	M	M	H	E
	Unlikely (10-40%)	L	L	M	M	H	H
	Very Unlikely (0-10%)	L	L	L	M	M	H
Storm Level	None	Minor	Moderate	Strong	Severe	Extreme	
Geomagnetic $ D_{st} $ in nT	<50	50-100	100-200	200-300	300-400	>400	
SEP peak flux > 10 MeV in $s^{-1}sr^{-1}cm^{-2}$	< 10^1	10^1-10^2	10^2-10^3	10^3-10^4	10^4-10^5	> 10^5	
SEP peak flux > 60 MeV in $s^{-1}sr^{-1}cm^{-2}$	< 7.9×10^{-2}	$7.9 \times 10^{-2} - 1.4$	$1.4 - 2.5 \times 10^1$	$2.5 \times 10^1 - 4.5 \times 10^2$	$4.5 \times 10^2 - 7.9 \times 10^3$	> 7.9×10^3	
K_p	<5	5	6	7	8	9	

Figure 3. Risk matrix used to estimate geomagnetic storm and SEP radiation storm risk levels in the COMESEP Alert System. L stands for low, M for medium, H for high and E for extreme risk.

CME: 2014-01-07T18:24:00-CME-001						
Actual Shock Arrival Time: 2014-01-09T19:32Z						
Observed Geomagnetic Storm Parameters:						
Max Kp: 3.0						
Predicted Shock Arrival Time	Difference (hrs)	Submitted On	Lead Time (hrs)	Predicted Geomagnetic Storm Parameter(s)	Method	Submitted By
2014-01-09T19:26Z (-10.0h, +10.0h)	-0.10	2014-01-07T21:00Z	46.53	----	STOA	Leila Mays (GSFC)
2014-01-09T00:38Z (-7.0h, +7.0h)	-18.90	2014-01-08T00:41Z	42.85	Max Kp Range: 6.0 - 8.0	WSA-ENLIL + Cone (GSFC SWRC)	Leila Mays (GSFC)
2014-01-09T08:00Z	-11.53	2014-01-08T01:31Z	42.02	Max Kp Range: 6.0 - 7.0	WSA-ENLIL + Cone (NOAA/SWPC)	Leila Mays (GSFC)
2014-01-08T22:00Z	-21.53	2014-01-08T03:17Z	40.25	Dst min. in nT: -146 Dst min. time: 2014-01-09T11:00Z	Anemomilos	WKent Tobiska (SET SWD)
2014-01-09T00:17Z (-6.9h, +9.2h)	-19.25	2014-01-08T04:11Z	39.35	Max Kp Range: 6.0 - 8.0	Ensemble WSA-ENLIL + Cone (GSFC SWRC)	Leila Mays (GSFC)
2014-01-09T04:30Z (-2.5h, +2.5h)	-15.03	2014-01-08T05:02Z	38.50	Max Kp Range: 5.0 - 8.0	Other (SIDC)	Leila Mays (GSFC)
2014-01-08T12:30Z	-31.03	2014-01-08T05:58Z	37.57	----	ESA	Leila Mays (GSFC)
2014-01-09T12:00Z (-7.0h, +7.0h)	-7.53	2014-01-08T06:32Z	37.00	----	WSA-ENLIL + Cone	RWC Jeju (KSWC)
2014-01-09T04:00Z (-6.0h, +6.0h)	-15.53	2014-01-08T09:42Z	33.83	----	DBM	Manuela Temmer (UNIGRAZ)
2014-01-10T04:04Z (-16.0h, +36.0h)	8.53	2014-01-08T14:56Z	28.60	Max Kp Range: 8.0 - 8.0 Dst min. in nT: -300	COMSESP	Andy Devos (SIDC)
2014-01-09T08:02Z	-11.50	2014-01-08T16:37Z	26.92	----	Expansion Speed Prediction Model	Aisson Dallago (INPE)
2014-01-09T02:00Z	-17.53	2014-01-08T17:53Z	25.65	Max Kp Range: 8.0 - 9.0	BHV	Volker Bothmer (UGOE)
2014-01-09T01:00Z	-18.53	2014-01-08T23:00Z	20.53	Dst min. in nT: -142 Dst min. time: 2014-01-09T12:00Z	Anemomilos	WKent Tobiska (SET SWD)
2014-01-09T13:00Z (-7.0h, +7.0h)	-6.53	2014-01-08T23:17Z	20.25	Max Kp Range: 6.0 - 8.0	WSA-ENLIL + Cone	Duty Forecaster (ASFC)
2014-01-09T11:22Z (-11.7h, +9.1h)	-8.17	2014-01-09T18:57Z	0.58	Max Kp Range: 3.0 - 5.0	Ensemble WSA-ENLIL + Cone (GSFC SWRC)	Leila Mays (GSFC)

Table 1. Shock arrival time of the 9 Jan. 2014 event based on various prediction methods.