

Index	Event Occurrence (at least once)		
$P_{dyn} > 4 \text{ nPa}$	9%	71%	1%
$AE > 800 \text{ nT}$	4%	64%	8%
$SYM - H_{min}$	20%	37%	36%
$Epoch \text{ Time}$ [Hours]			
	-24	-12	0 6

**Table 1.** Association of  $P_{dyn}$ ,  $AE$ , and  $SYM - H$  indices. The epoch time is mentioned at the bottom. Time 0 is the start time of observing COBs at the tail. The percentages are the fraction of events (among 86 events) in which the left column condition is satisfied at least once during the corresponding time interval. For example, during the 12 hours period before observing heavy ions, we see that in 71% of the events  $P_{dyn}$  was observed to be at least once above  $4 \text{ nPa}$ . The event occurrence rates do not add up to 100% since, for instance, for  $P_{dyn}$  case 19% of the events either have no associated intervals with  $P_{dyn} > 4 \text{ nPa}$  periods or the  $P_{dyn}$  above  $4 \text{ nPa}$  happened at longer times before the observations.