名古屋大学	塩川 研究室			
氏名	竹下祐平	学年/職名	修士2年	
発表タイトル	Global spatio-temporal development of magnetospheric			
	ELF/VLF waves based on ground-satellite observation and			
	RAM simulation			
	The magnetospheric ELF/VLF waves are plasma waves generated by energetic electrons from several keV to tens of keV with temperature			
	anisotropy at magnetospheric equatorial plane of the inner			
	magnetosphere. These ELF/VLF waves with frequencies lower than lo			
発表要旨	half-gyro frequency (lower-band) can propagate to the ground along geomagnetic field lines. It is also known that the ELF/VLF waves interact			
	with electrons drifting longitudinally in the inner magnetosphere, and			
	help accelerate them to relativistic energies. It is important to know the			
	spatial-scale of magnetospheric ELF/VLF waves to estimate the amount of			
	generated relativistic electrons.			
	Takeshita et al. [submitted to JGR 2019] statistically investigated the			
	longitudinal extent of the magnetospheric ELF/VLF waves using six			
	ground-based stations for two months, and showed the typical extent of			
	the ELF/VLF waves as ~80 degrees in longitude. On the other hand,			
	Jordanova et al. [JGR, 2010] investigated the global distribution of linear			
	growth rate of whistler mode chorus waves using global ring current-			
	atmosphere interactions model (RAM), and showed that the region of large			
	linear growth rate can extend ~180 degrees in longitude during the			
	geomagnetic storm of 22 April 2001.			
	In this study we investigate the spatio-temporal distribution of the source			
	region of magnetospheric ELF/VLF waves using three methods, (A) wave			
	observation using gro	ound based stat	tions and satellites, (B) proxy of	
	ELF/VLF waves using	precipitating el	ectrons observed by POES/MetOP,	
	and (C) linear growth	n rate calculate	d by RAM simulation during the	
	geomagnetic storm period from 26-30 March 2017.			
	(A) Wave observations are investigated using ground based observations			
	at Athabasca (ATH	; 54.7N, 246.4E,	MLAT: 61.3N), Kapuskasing (KAP;	

	49.4N, 277.8E, MLAT: 58.7N), Kannuslehto (KAN: 67.7N, 26.3E,			
	MLAT: 64.5N) and satellite-based observations by ERG with an apogee			
	in the pre-dawn sector and RBSP-A and RBSP-B with an apogee in the			
	post-dusk sector.			
	(B) proxy of ELF/VLF waves were estimated by precipitating electrons			
	observed by POES/MetOP satellites [e.g. Li et al. 2013, Chen et al.			
	2014]			
	(C) Global distribution of linear growth rate of ELF/VLF waves obtained			
	by the RAM simulation [Jordanova et al. 2012]. The self-consistent			
	magnetic field and the Volland-Stern electric field are used as ambient			
	magnetic and electric fields. The night-side boundary conditions are			
	determined from plasma sheet flux measurements by LANL			
	geosynchronous spacecraft.			
	We compared the global distribution of magnetospheric ELF/VLF waves			
	estimated from these three methods. We found that the magnetospheric			
	ELF/VLF waves with an extent from 0 MLT to 12 MLT associated with			
	substorm onset were observed by three methods. In this presentation, we			
	will also report comparison with another geomagnetic storm event during			
	19-24 Nov 2017. Seven ground based stations were operated during this			
	event, so that we can estimate spatio-temporal development of waves in			
	more detail.			
キーワード	・コーラス波動			
•	・内部磁気圏			
キーポイント	・グローバル分布			
	・地上衛星同時観測			