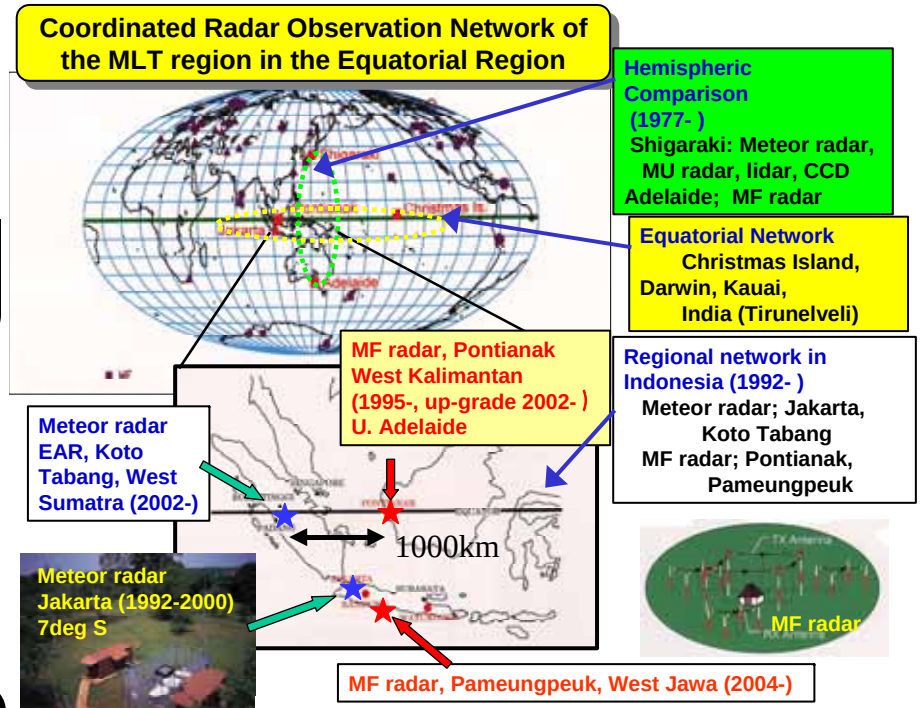
CPEA-II期間の１日周期振動

京都大学生存圏研究所
中村卓司,S. Sridharan, 津田敏隆

ＣＰＥＡ２
ＭＬＴレーダー観測



観測状況

Kototabang **流星レーダー**(0S,103E)

9.24**の落雷での故障、**11.17**に復旧。**

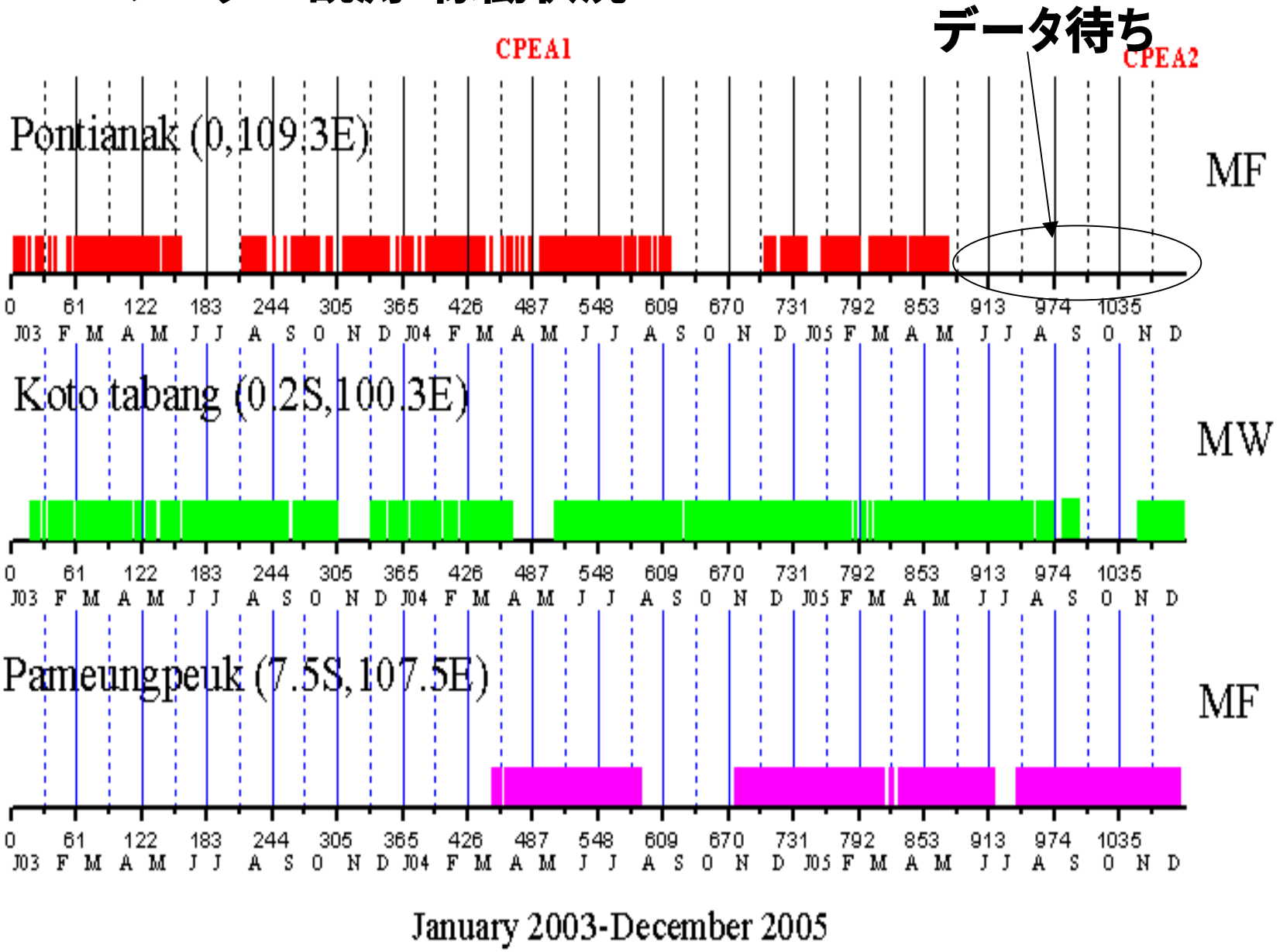
Pameungpeuk　MF **レーダー**(7.5S,107.5E)　　**ほぼ連続観測**

Pontianak MF**レーダー**(0N,109E)　**ネットワーク不調。現在コンタクト中。**

関連レーダー

Tirunelveli MF**レーダー(インド)**　(S.Gurubaran) **観測状況良好。**

ＭＬＴレーダー観測：稼働状況

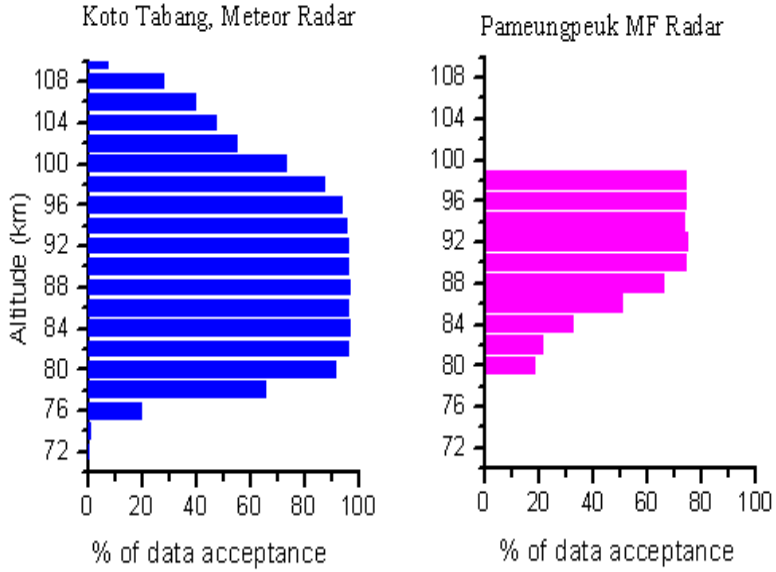


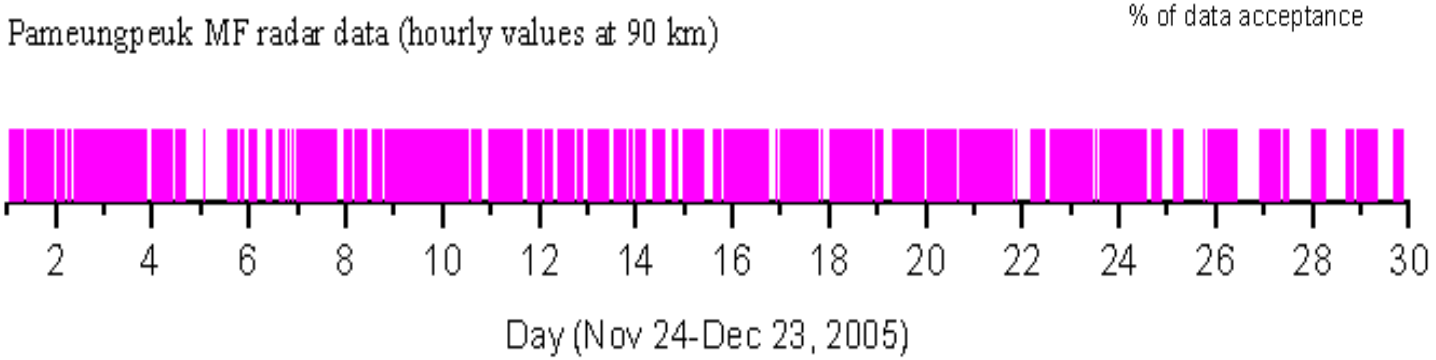
January 2003-December 2005

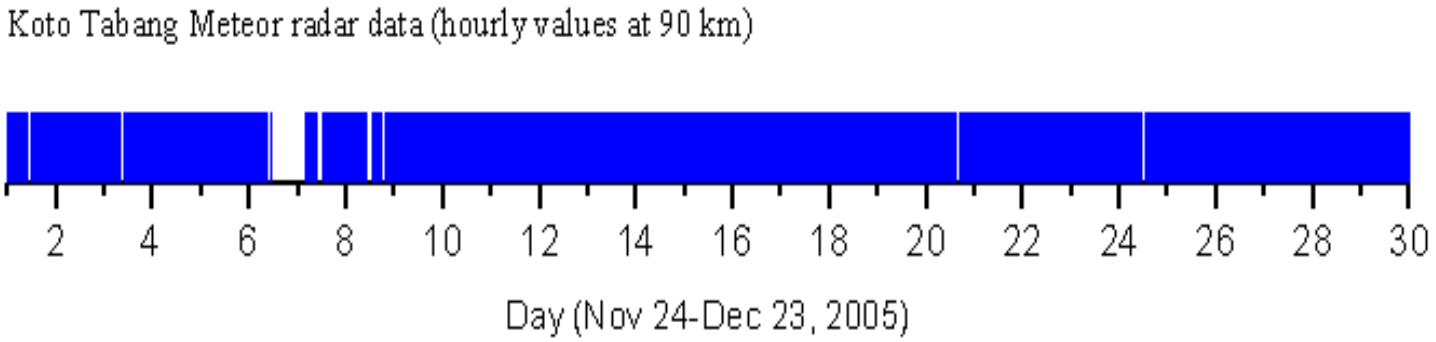
Kototabang MWR

Pameungpeuk MFR

CPEA-2 **中の観測状況**

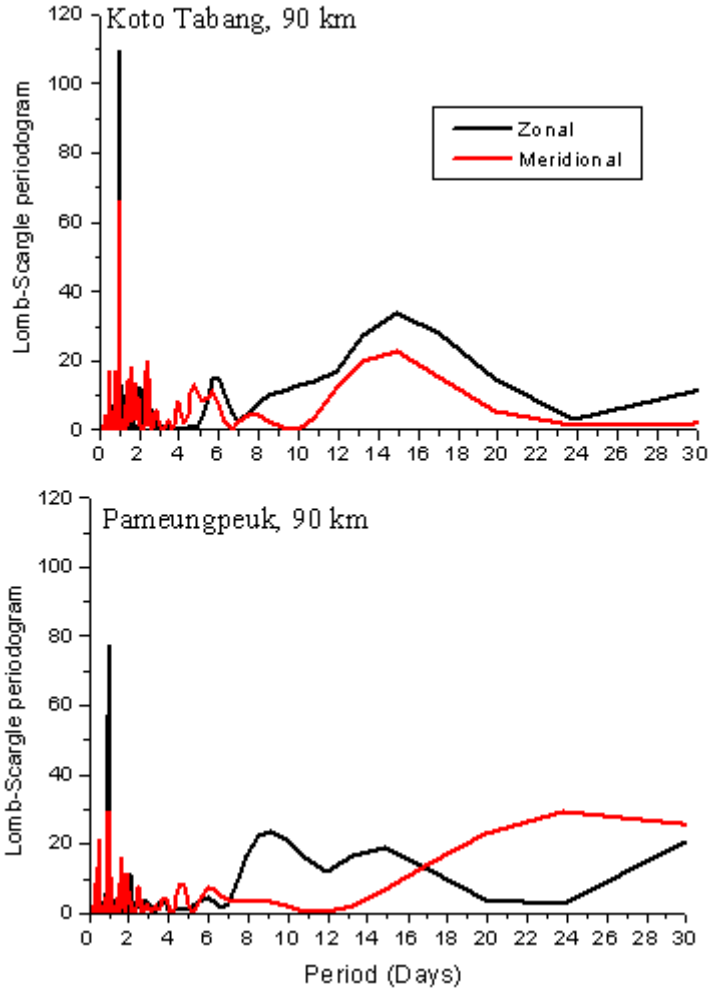




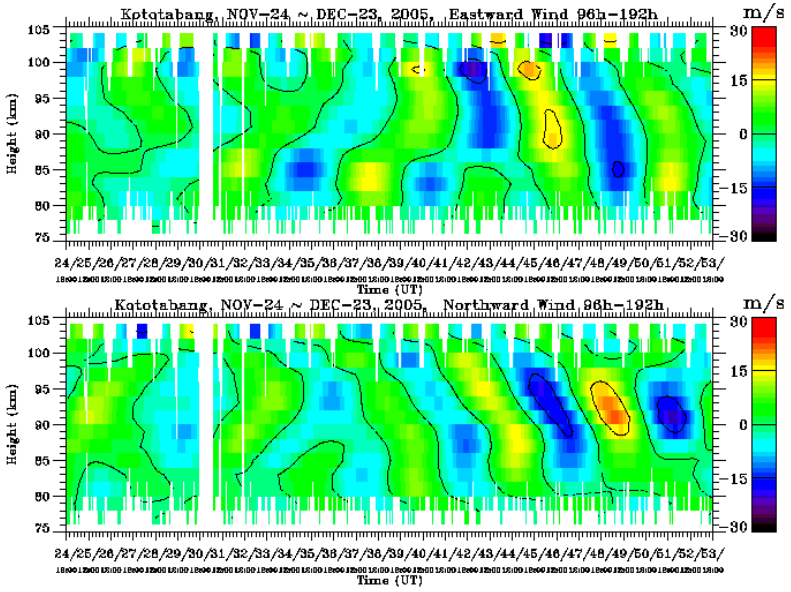


CPEA2

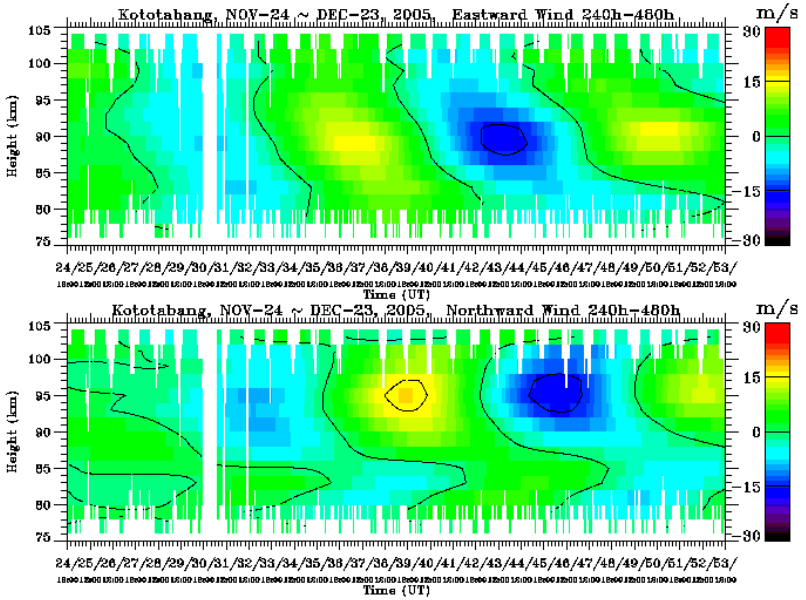
90km風速のピリオドグラム



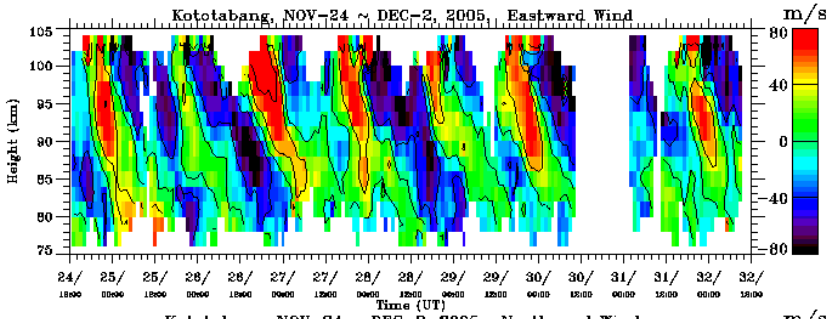
4－8日成分

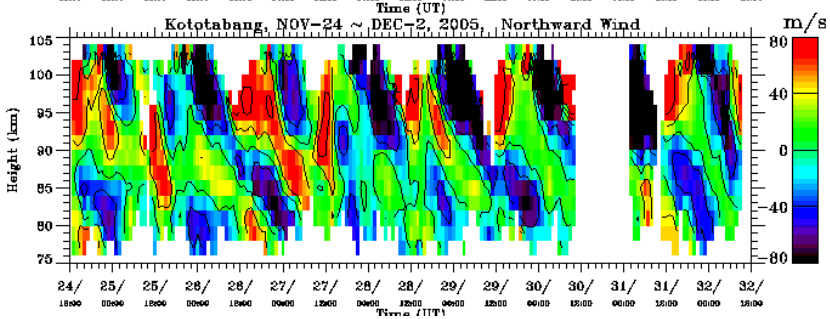


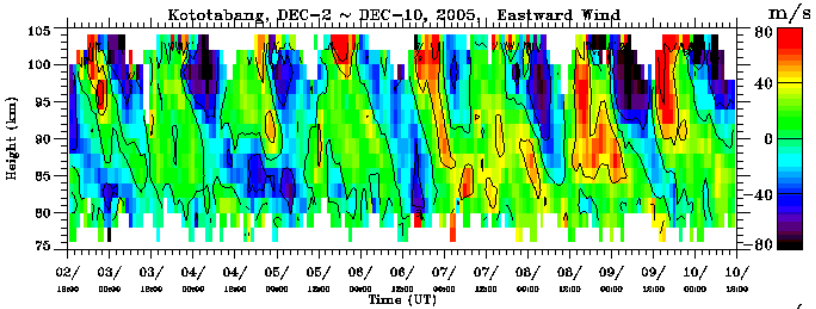
10－20日成分

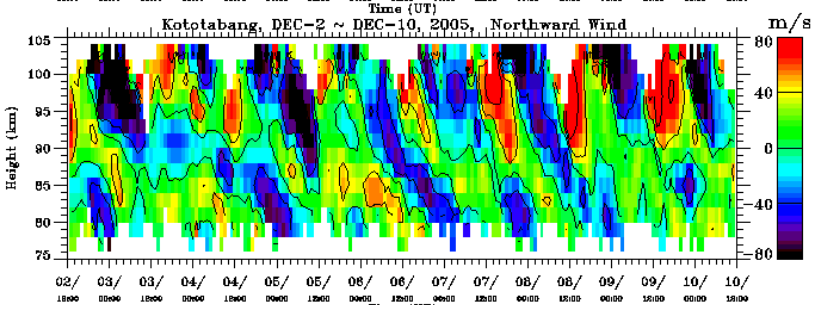


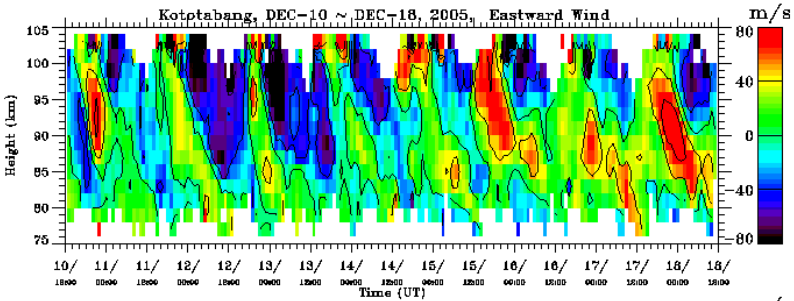
CPEA-2 data quicklook: Kototabang MWR hourly wind

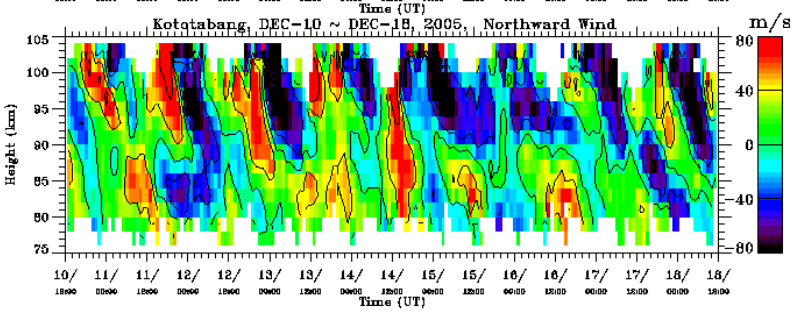


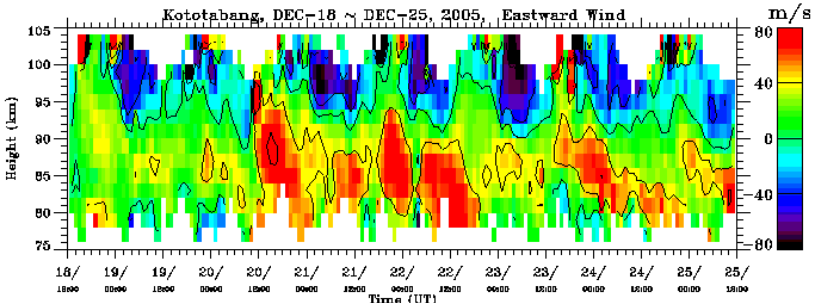


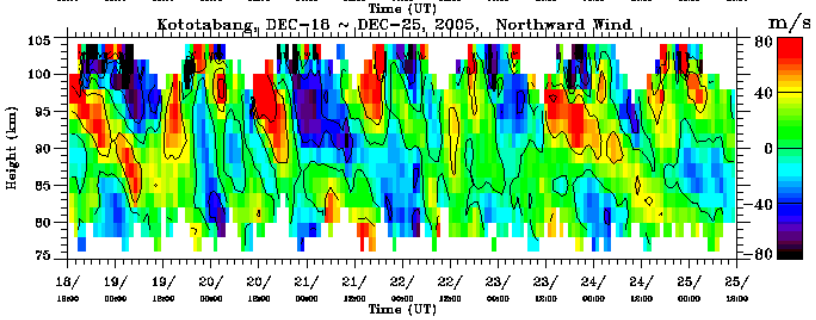




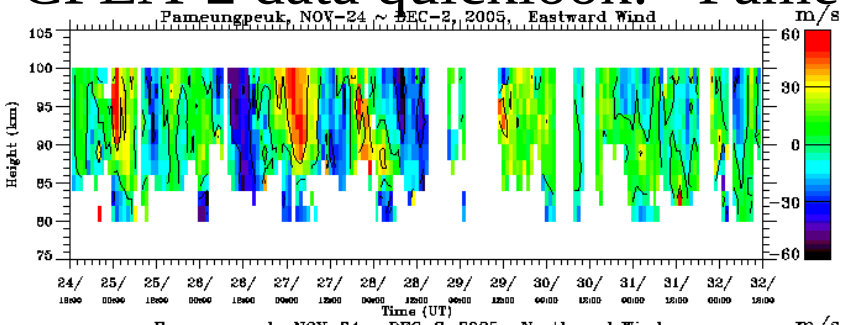


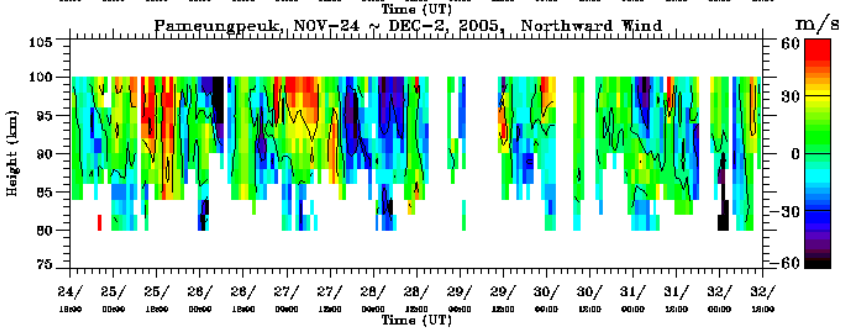


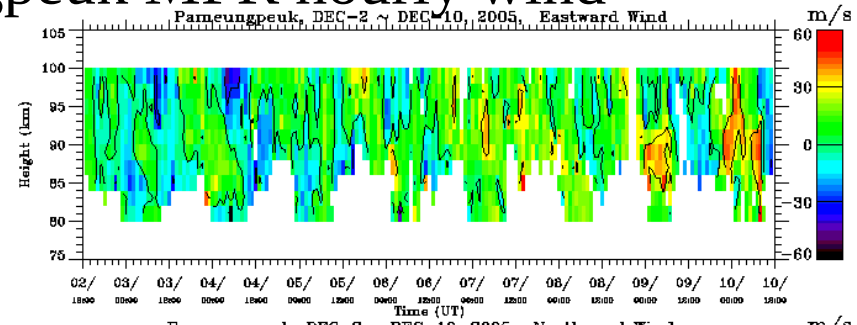


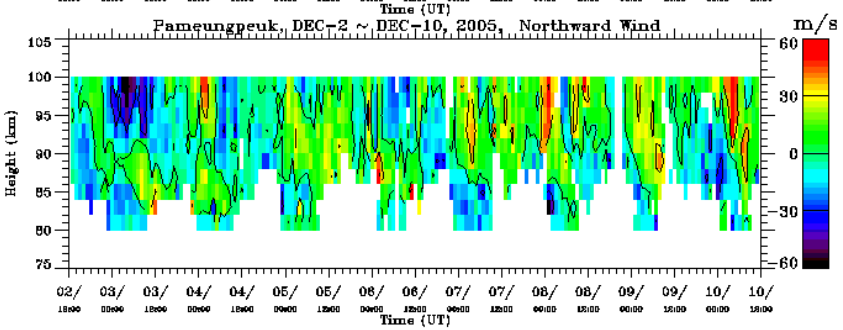


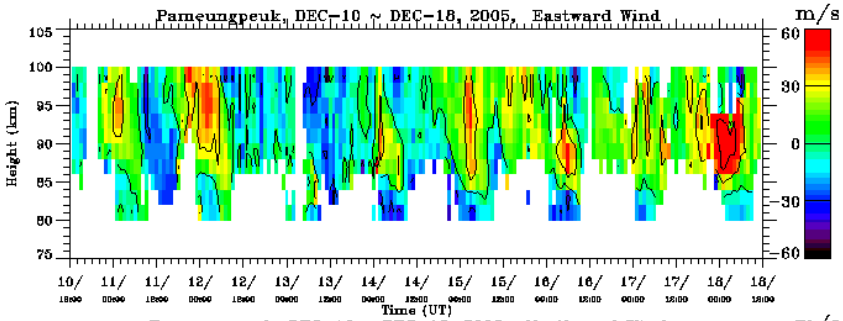
CPEA-2 data quicklook: Pameungpeuk MFR hourly wind

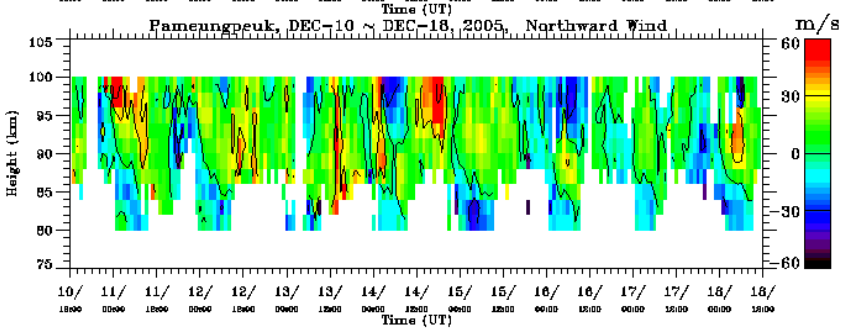


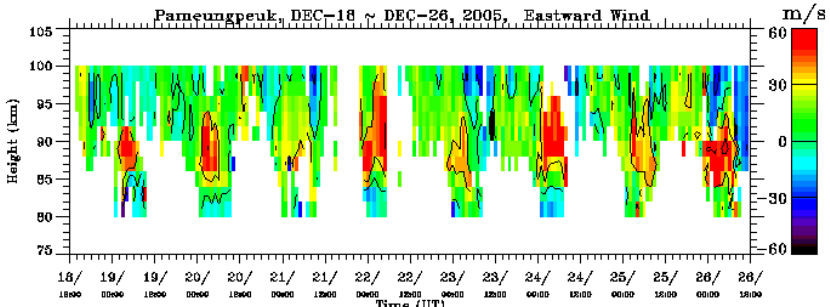


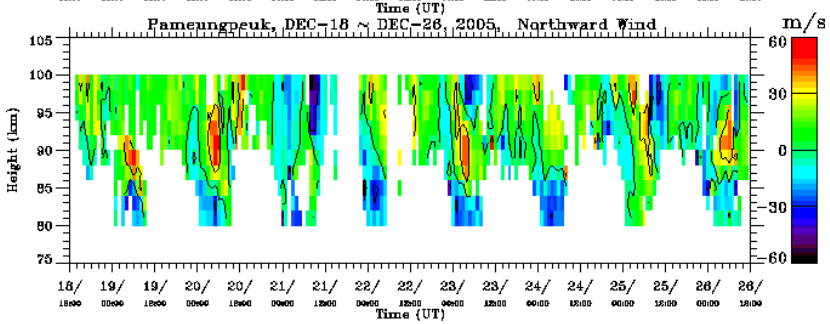






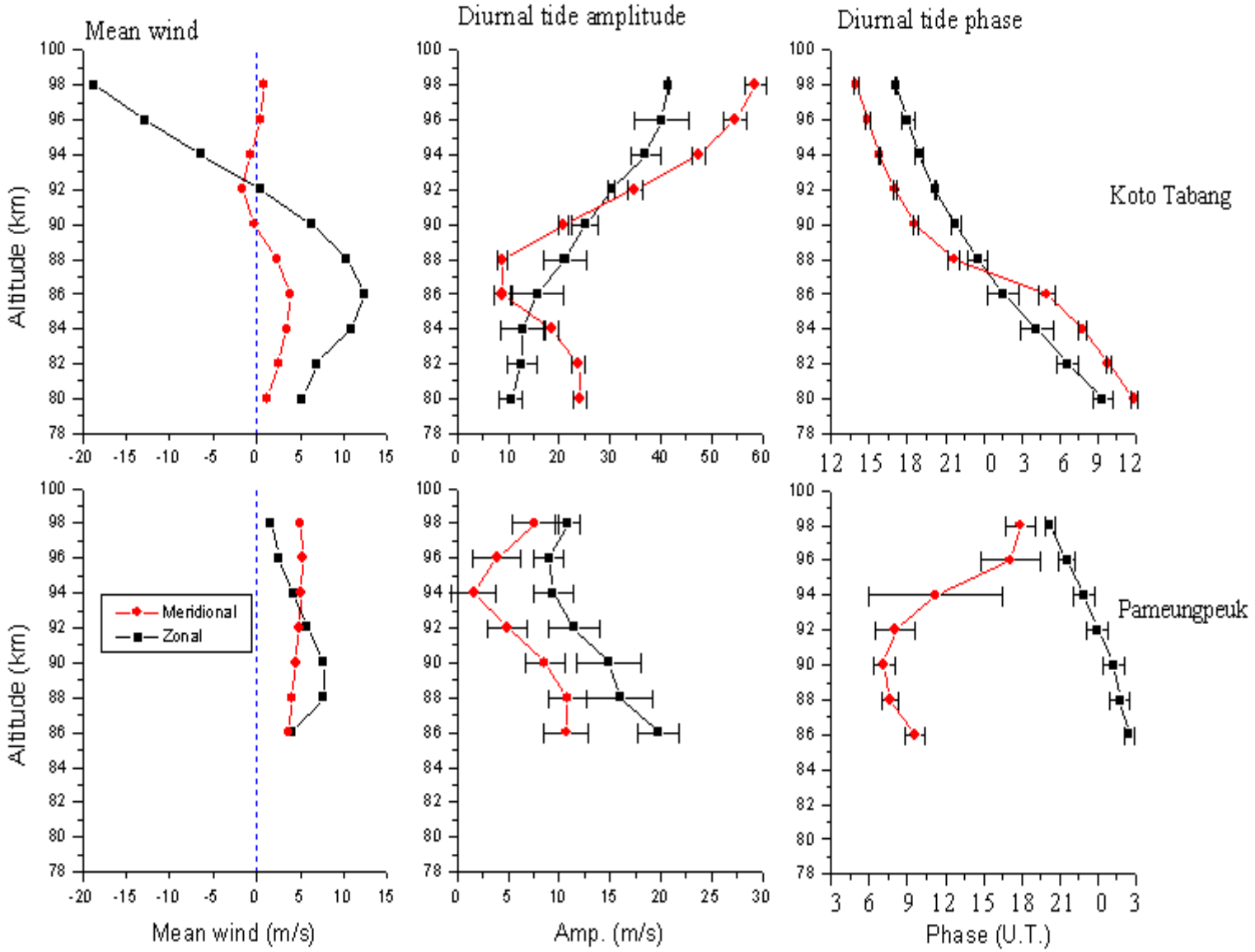


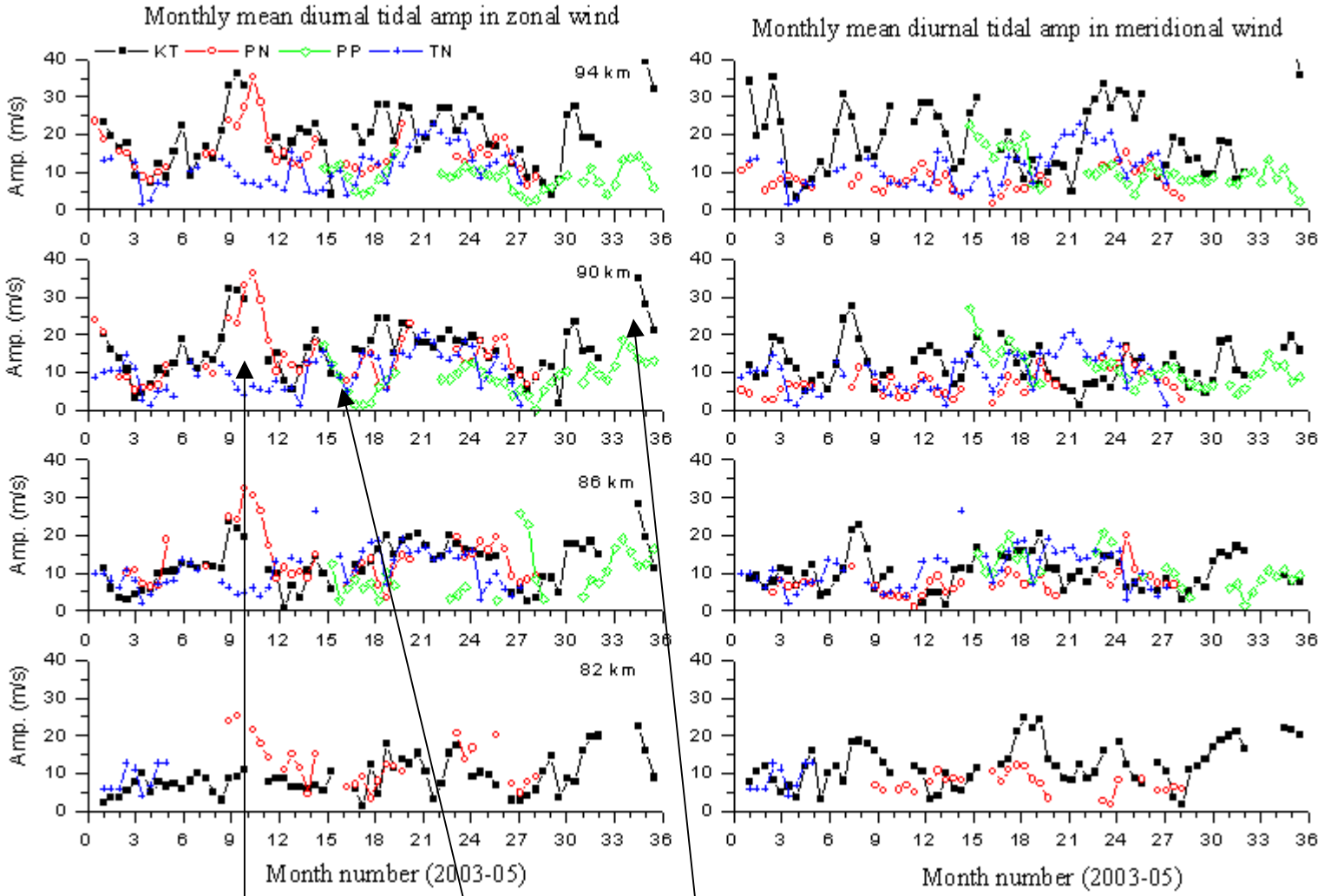


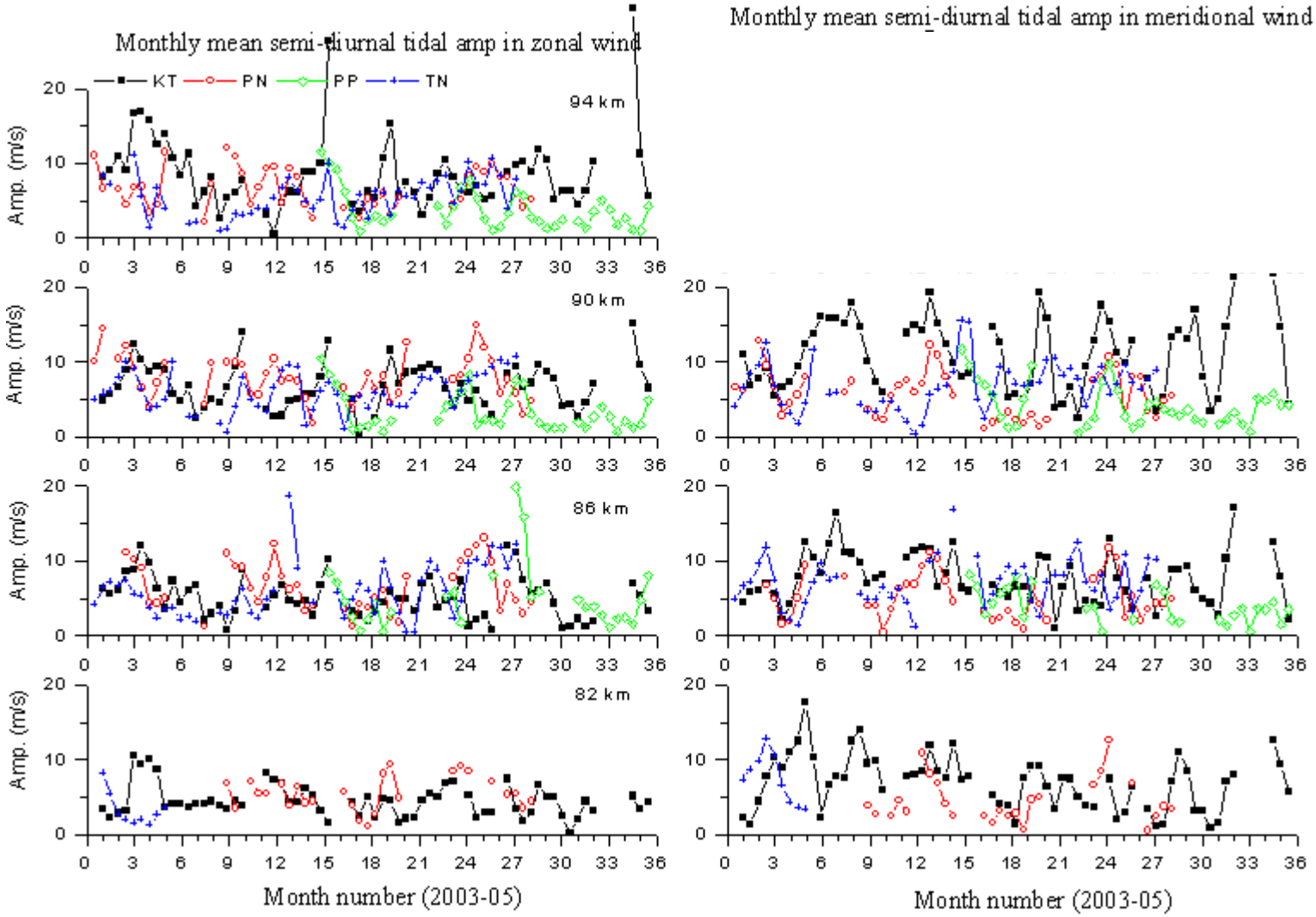


CPEA2

Comparison of mean wind and diurnal tide




Monthly mean diurnal tidal amp in zonal wind
KT
PN
PP
TN
94 km
90 km
86 km
82 km
Amp. (m/s)
Month number (2003-05)
Monthly mean diurnal tidal amp in meridional wind
Month number (2003-05)
Nov. 2003
CPEA-I
CPEA-II


Monthly mean semi-diurnal tidal amp in zonal wind
KT
PN
PP
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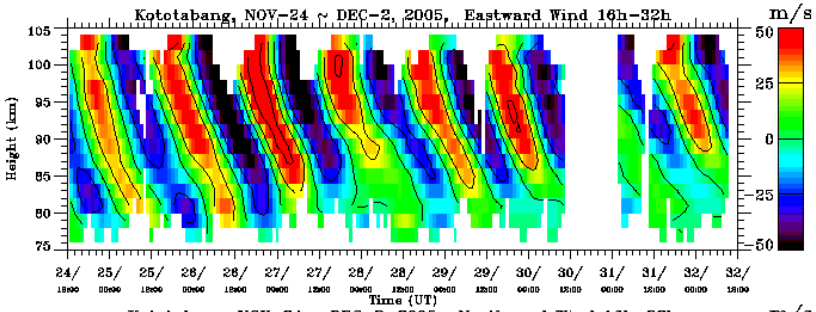
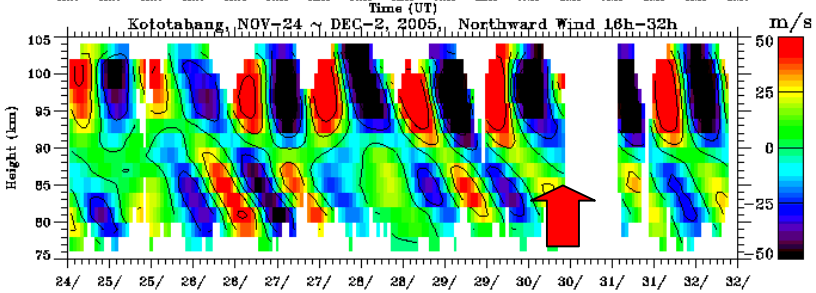
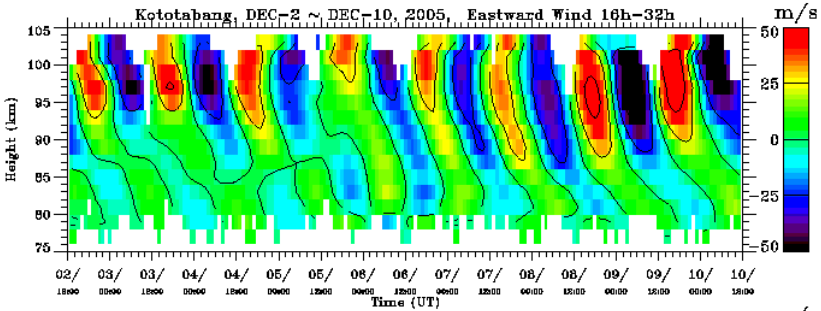
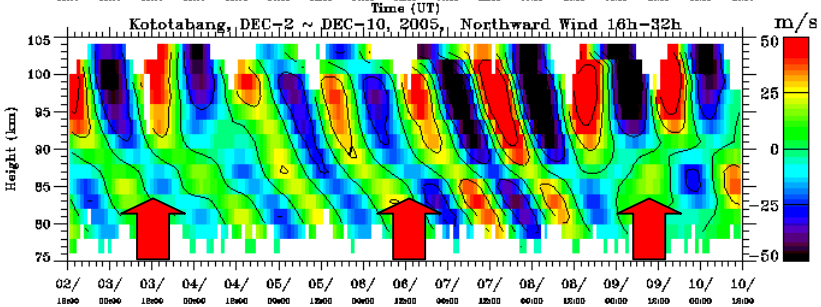
94 km
90 km
86 km
82 km
Amp. (m/s)
Month number (2003-05)
Monthly mean semi-diurnal tidal amp in meridional wind
Month number (2003-05)

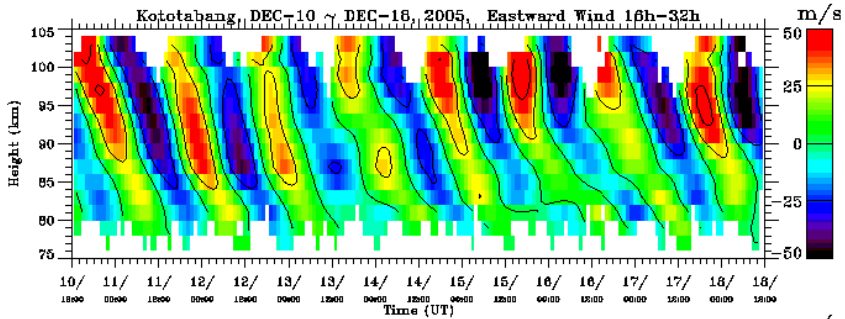
CPEA-2 data quicklook: Kototabang MWR hourly wind(16-32h)

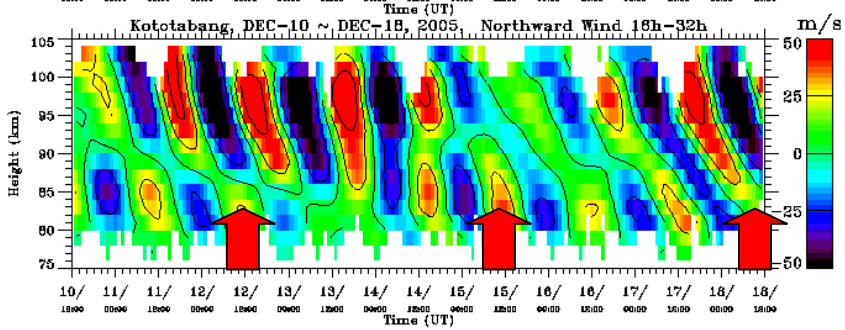


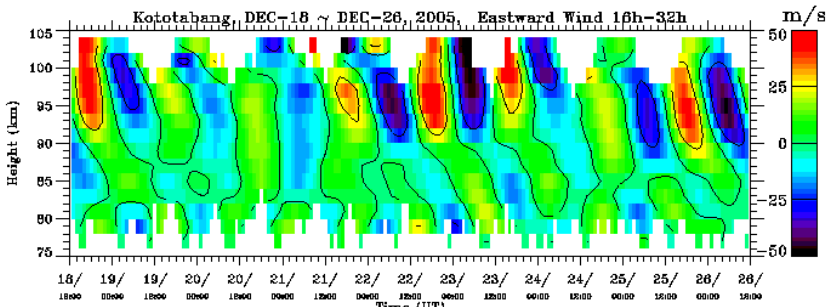


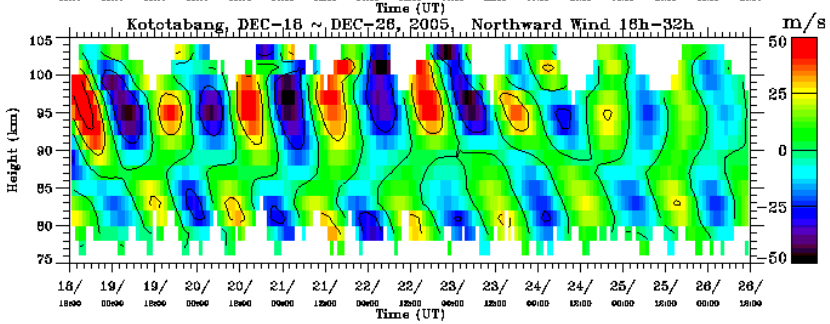




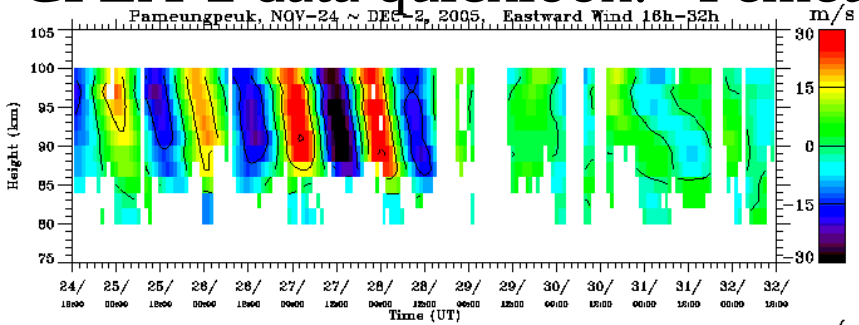


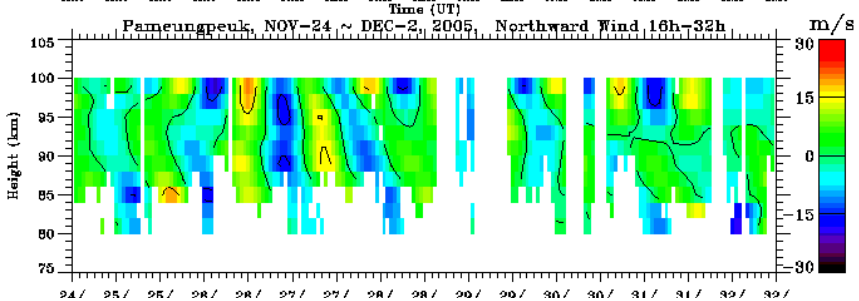


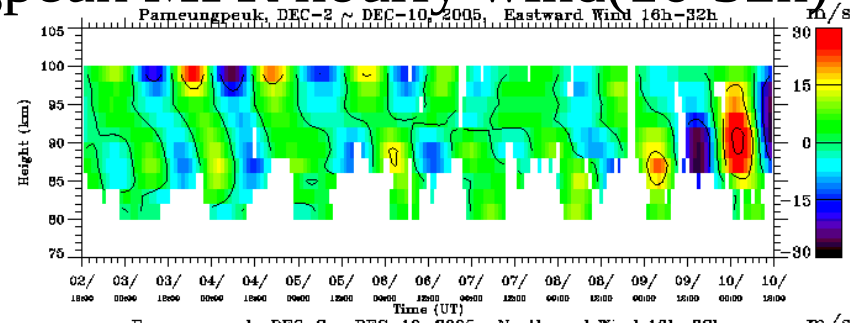


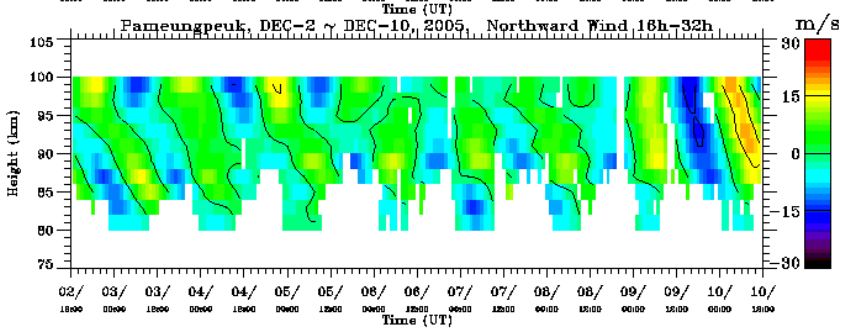


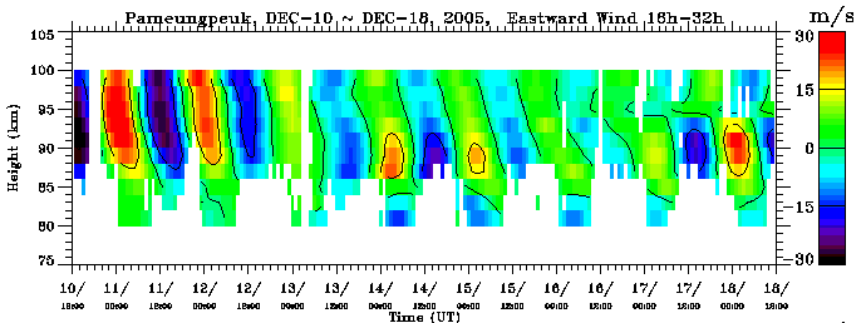
CPEA-2 data quicklook: Pemeungpeuk MFR hourly wind(16-32h)

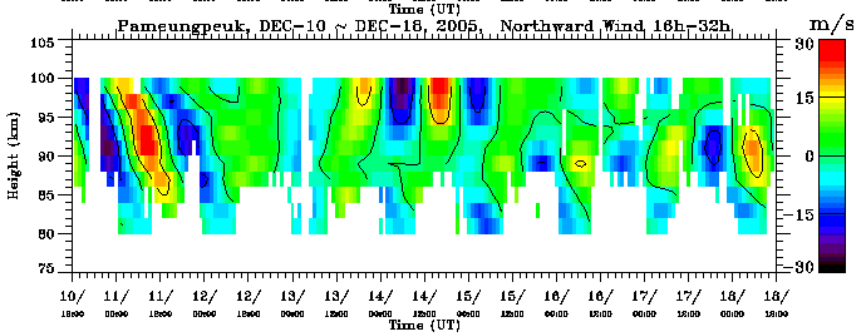


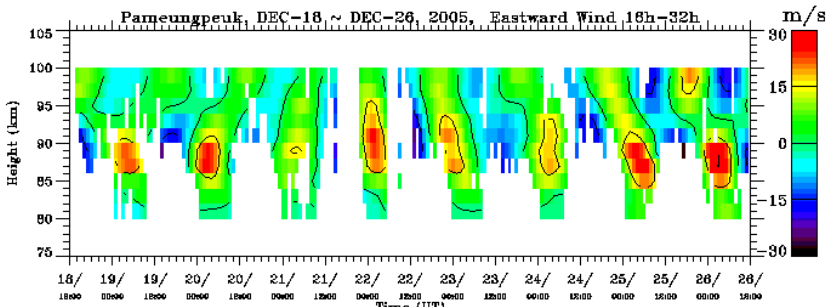


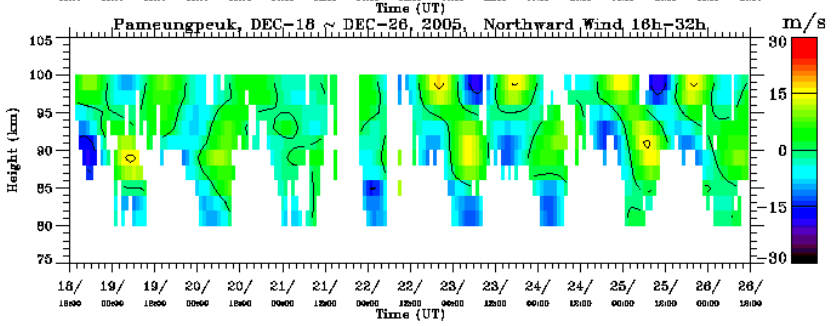






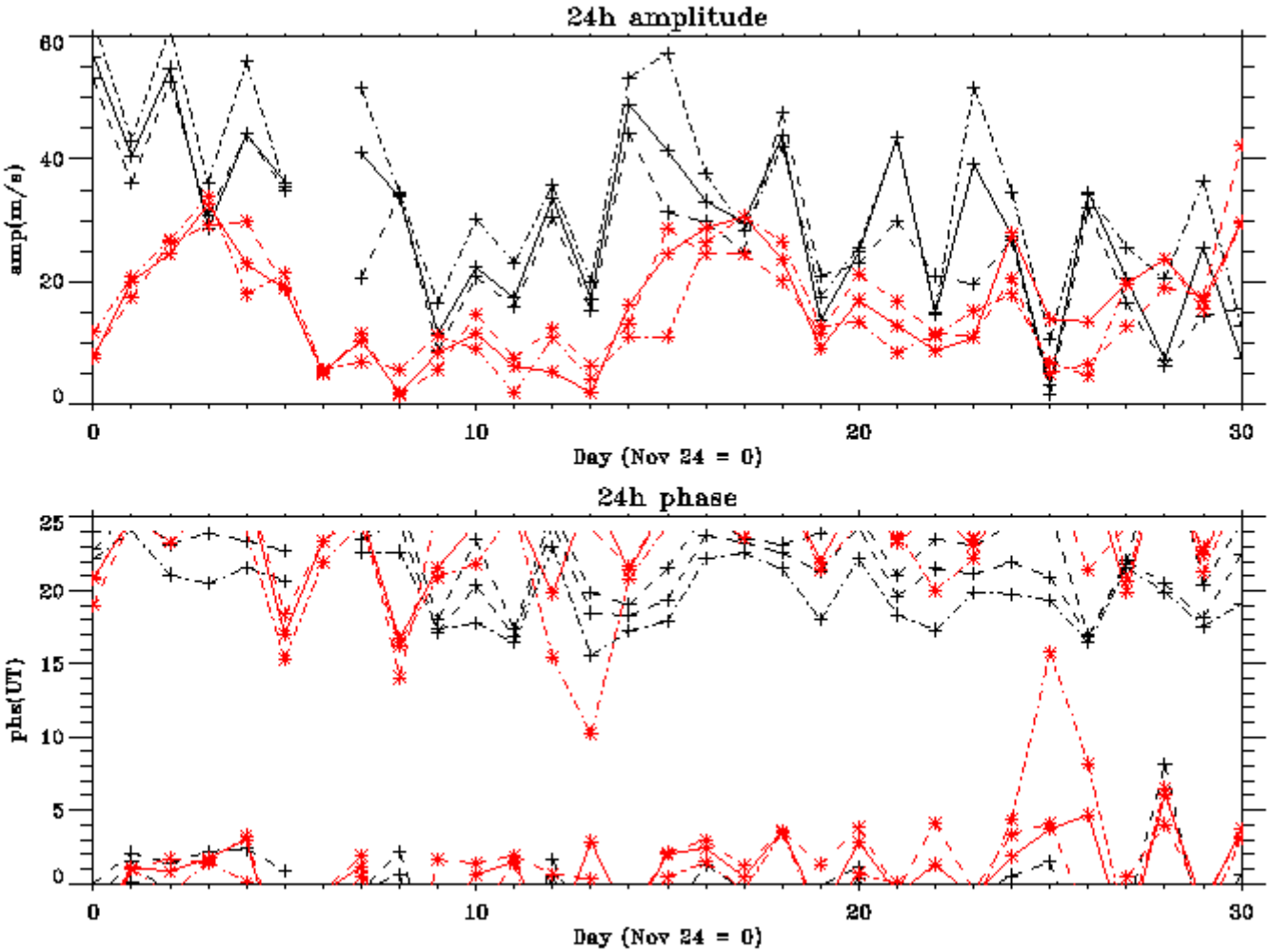






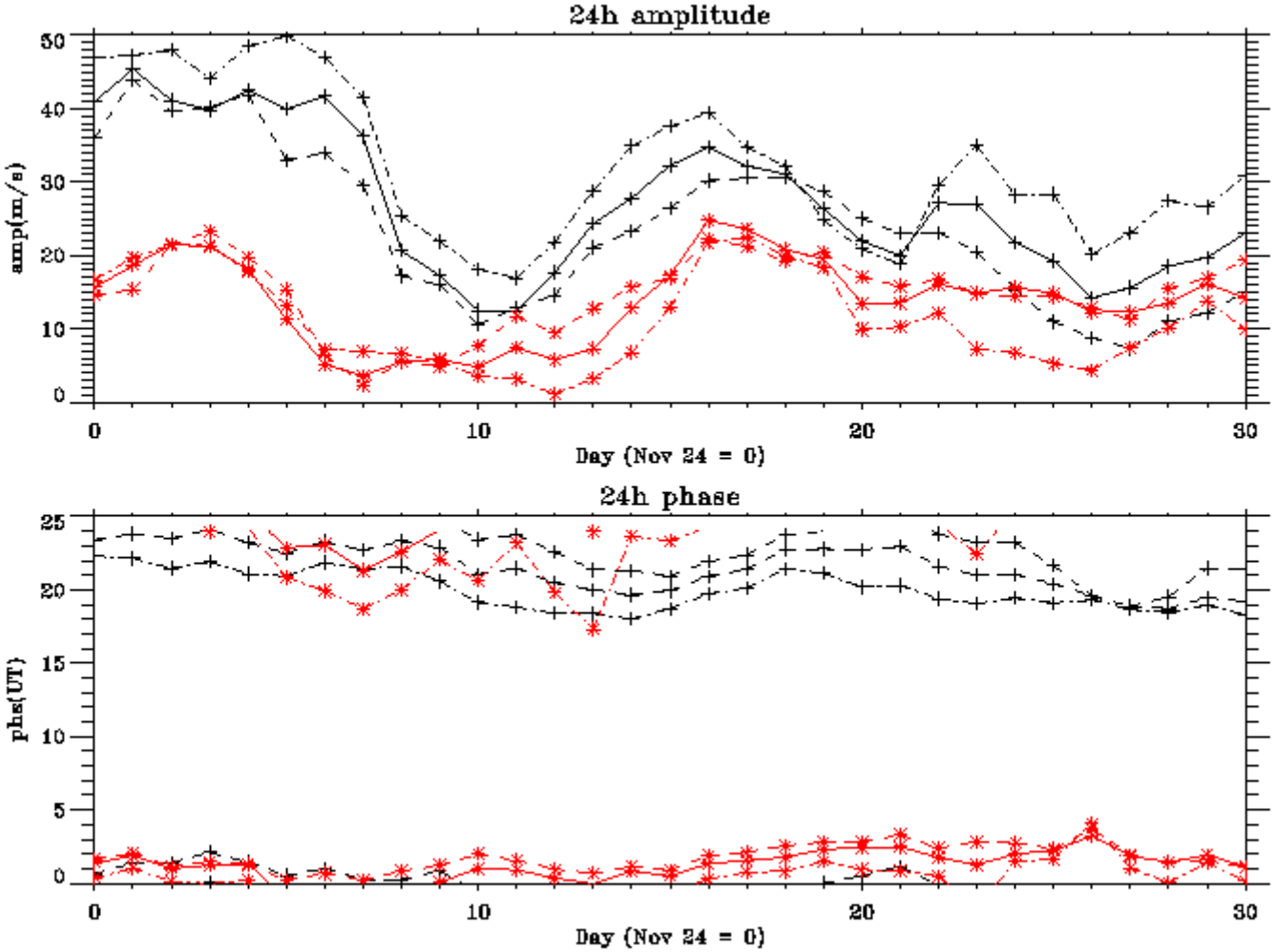
24時間周期振動成分　（1日fitting）　東西風　90±2km

赤：Pameungpeuk(7.5S), 黒：Kototabang(0S)

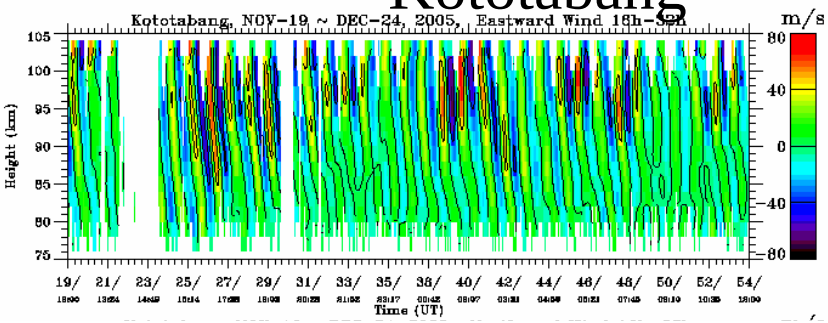


24時間周期振動成分　(4日fitting)　東西風　90±2km

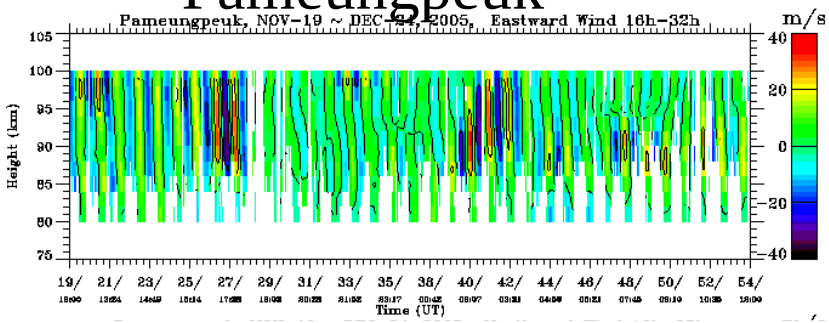
赤：Pameungpeuk(7.5S), **黒**：Kototabang(0S)



Kototabang

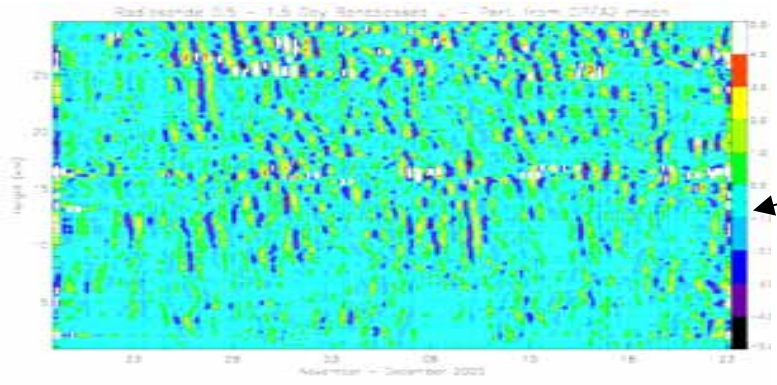


Pameungpeuk



50km

Kototabang



ラジオゾンデによる

24時間周期u’

(S. Alexanderさんより)

潮汐波が下層から高度１００ｋｍまで達する時間は２－１０日

Table 1. Diurnal Vertical Group Velocities and Times Needed for Modal Steady State Signal to Propagate Through the Middle Atmosphere

Mode	W_{0n}, m s^{-1}	t_z, days
1, 1	0.14	8
1, 2	0.087	13
1, 3	0.062	19

See text for definitions of W_{0n} and t_z.

Table 2. Same as Table 1 Except Semidiurnal Tide

Mode	W_{0n}, m s^{-1}	t_z, days
2, 2	<0.20	>6
2, 3	<0.62	>1.9
2, 4	0.47	2.4

Waltersheid, 1997

まとめ

- CPEA-II期間のＭＬＴ領域１日周期振動（潮汐）をKototabang(KT, 0S, 100E)とPameungpeuk(PP,7.5S, 107.5E)のレーダーから解析した。
- ２年毎（？）の大振幅期にあたっている。
  (zonal wind amp. 30m/s @90km。前回は２００３年１１月.
  東向き伝搬の太陽非同期潮汐波)
- KT, PPの東西、南北成分位相プロファイルは類似。
  振幅は、ＫＴ　＞ＰＰ
- １日毎の振幅位相の変化
  ＫＴの振幅の日々変動が大。ＰＰは小。
  緯度の違い？　赤道付近に波動が局在？
  電離圏への波動伝搬の影響を考えるときこの点要注意。
- ４日fittingによる位相振幅の変化
  振幅、位相の変化がＫＴ，ＰＰで類似。（１０００ｋｍ超）
  ー＞４日程度以上の変動は下層起源と考えることも可能。？
  １２ー３日程度の周期で振幅変動。
- なぜ、ＰＰ，ＫＴで大きな振幅の違いがあるか？
  強い潮汐（２４時間振動）が赤道付近に局在？
  （たとえば、tide-GW/PW相互作用で励起）
  慣性重力波？　観測システムの違いの問題も要検討？