



## *DRRAA Weather Radars for Rainmaking Operation and Research*

How we measure rainfall?  
Why it's important to estimate rainfall?  
How to estimate rainfall via weather radar?





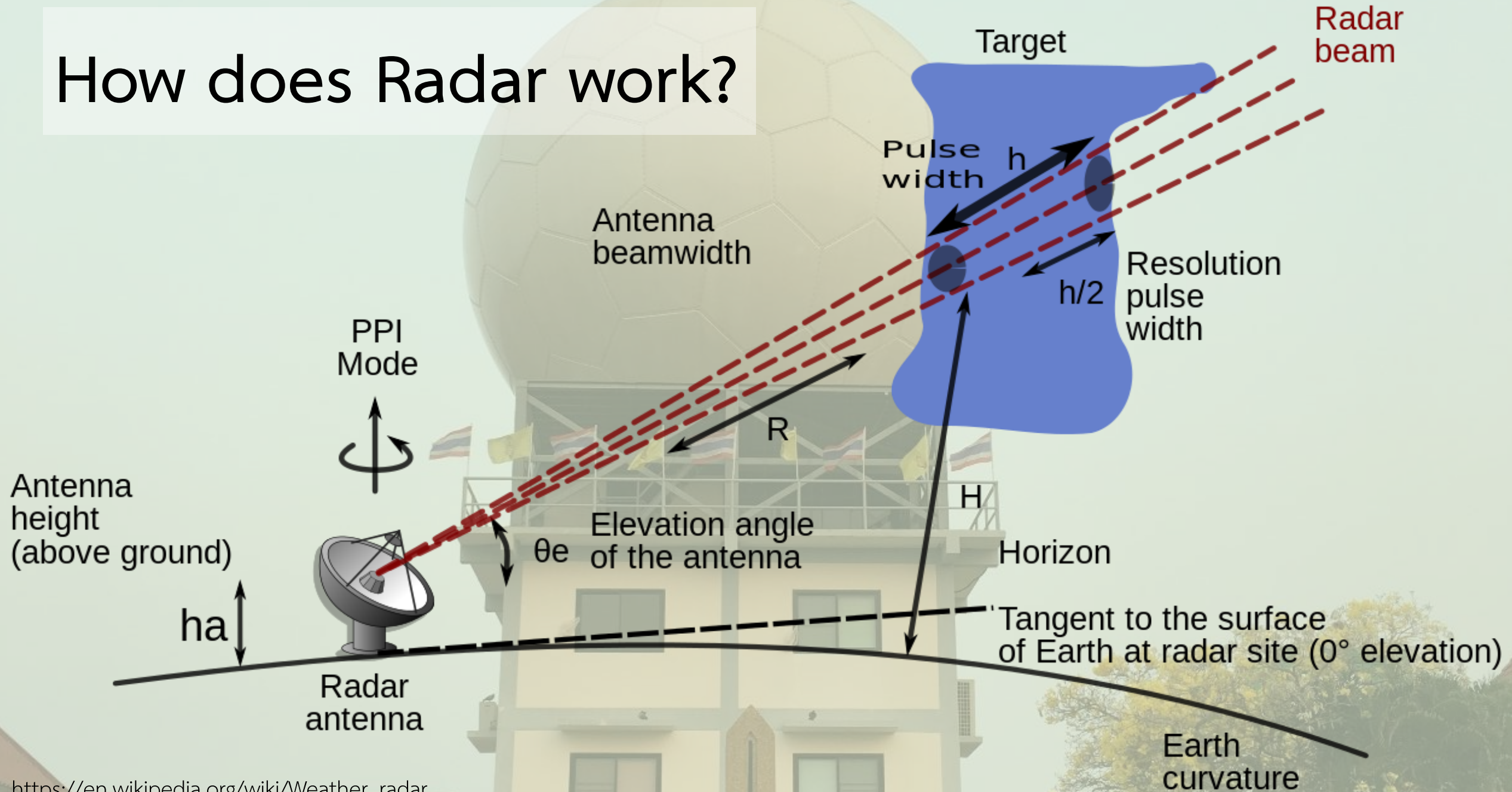
Rain Gauge



Weather Radar



# How does Radar work?

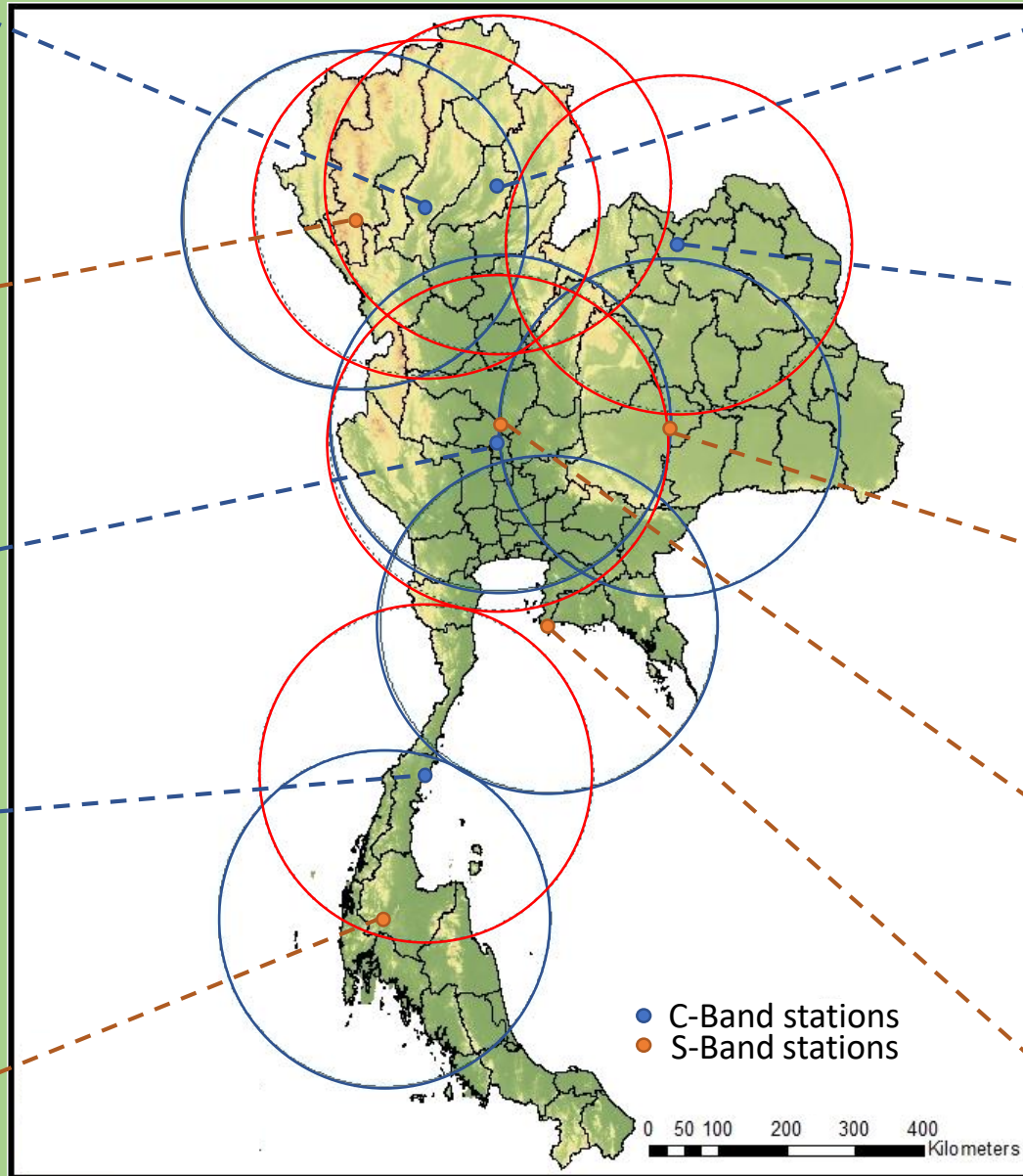




# *DRRAA weather radars*



# DRRAA Weather Radars



S-band : 5 stations

C-band : 5 stations

Operate mode VCP 11

Range 240 km

Resolutions 0.6 km/pix



# *Application of weather radars*



*For Rainmaking operation*



*For Research*

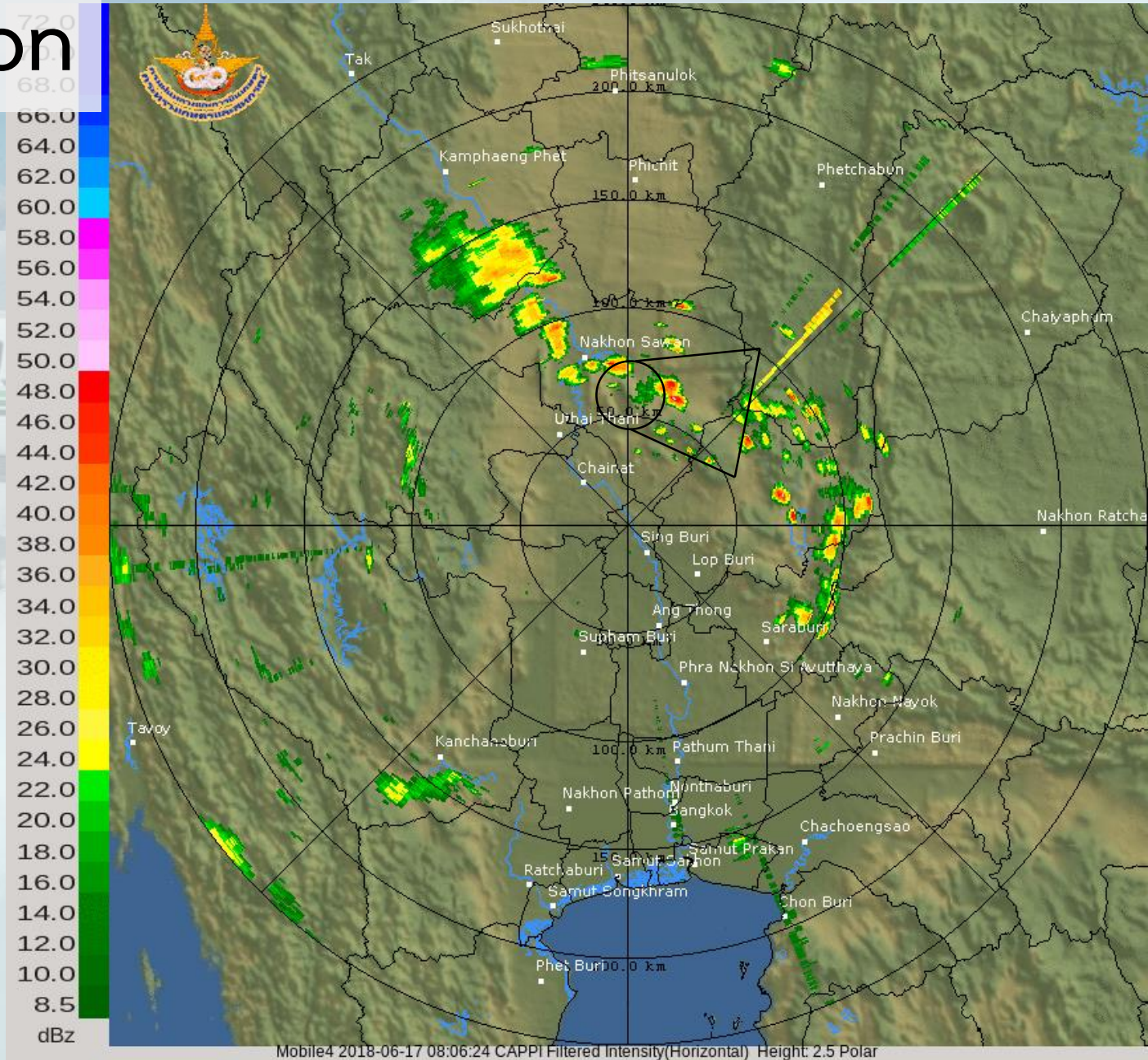


# For Rainmaking Operation

Weather observation

Rainmaking decision and  
planning

Rainmaking evaluation



# *Application of weather radars*

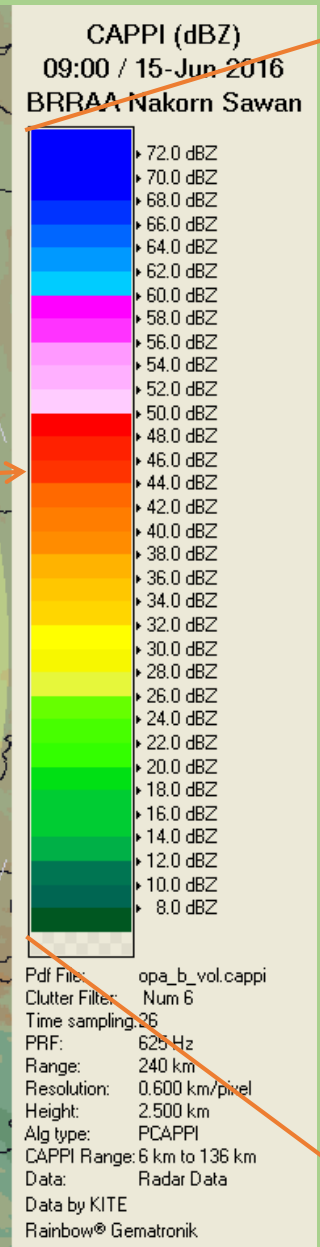
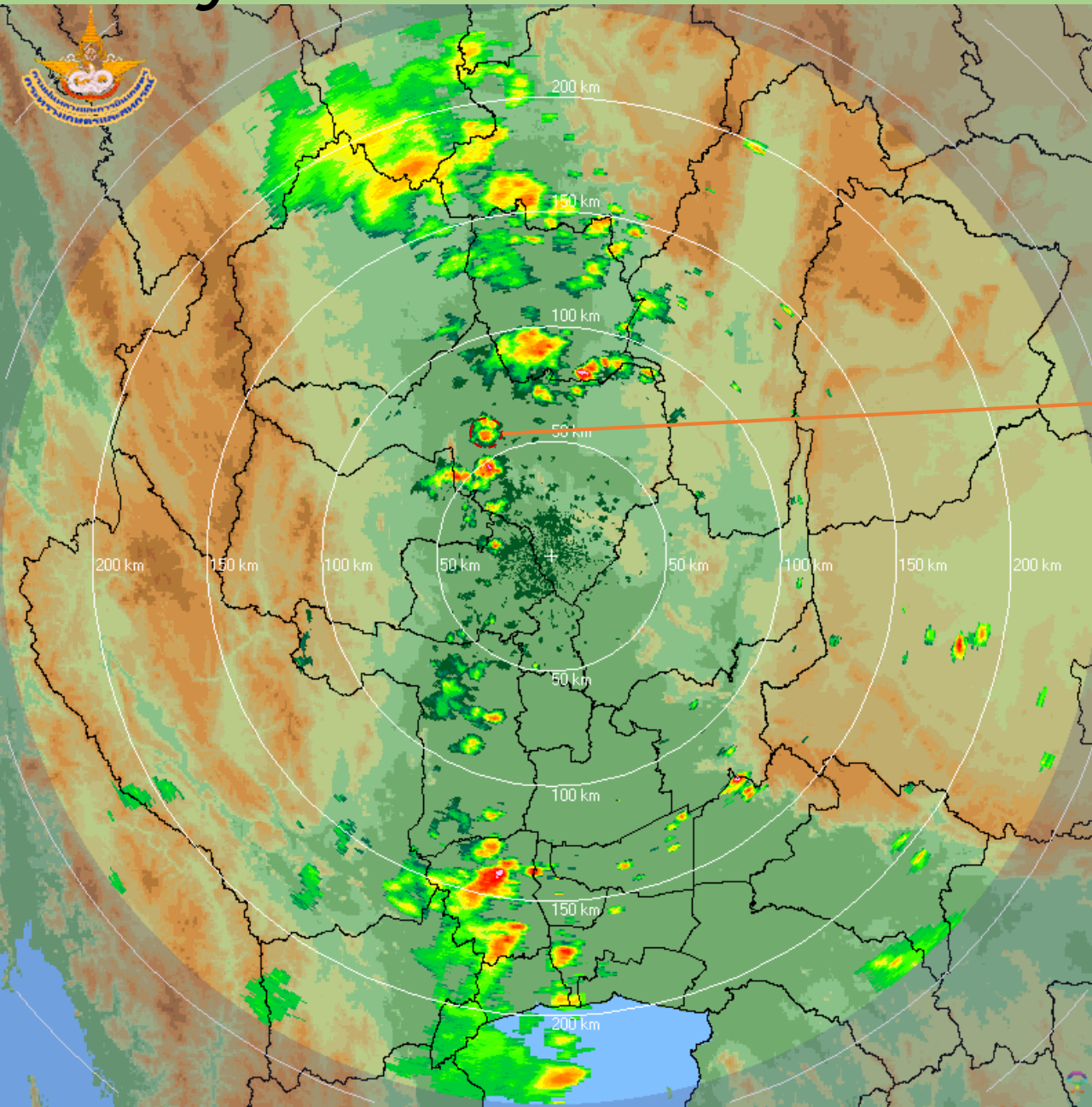


*For Research*



# Rainfall estimation : $Z=aR^b$ relation

$$Z=92.4R^{1.5}$$



mm/hr	
1838.81	
1352.70	
995.11	
732.04	Extreme/ large hail
538.52	
396.16	Very heavy/ small hail
291.43	
214.39	
157.71	
116.02	
85.35	Heavy
62.79	
46.19	
33.98	
25.00	
18.39	Moderate to heavy
13.53	
9.95	
7.32	
5.39	
3.96	Moderate rain
2.91	
2.14	
1.58	
1.16	
0.85	Light to moderate
0.63	
0.46	
0.34	
0.25	
0.18	
0.14	
0.10	



*International Journal of Engineering Issues*

Vol. 2016, no. 2, pp. 92-100

ISSN: 2458-651X

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## **An Operational Weather Radar-Based Calibration of Z-R Relationship over Central Region of Thailand**

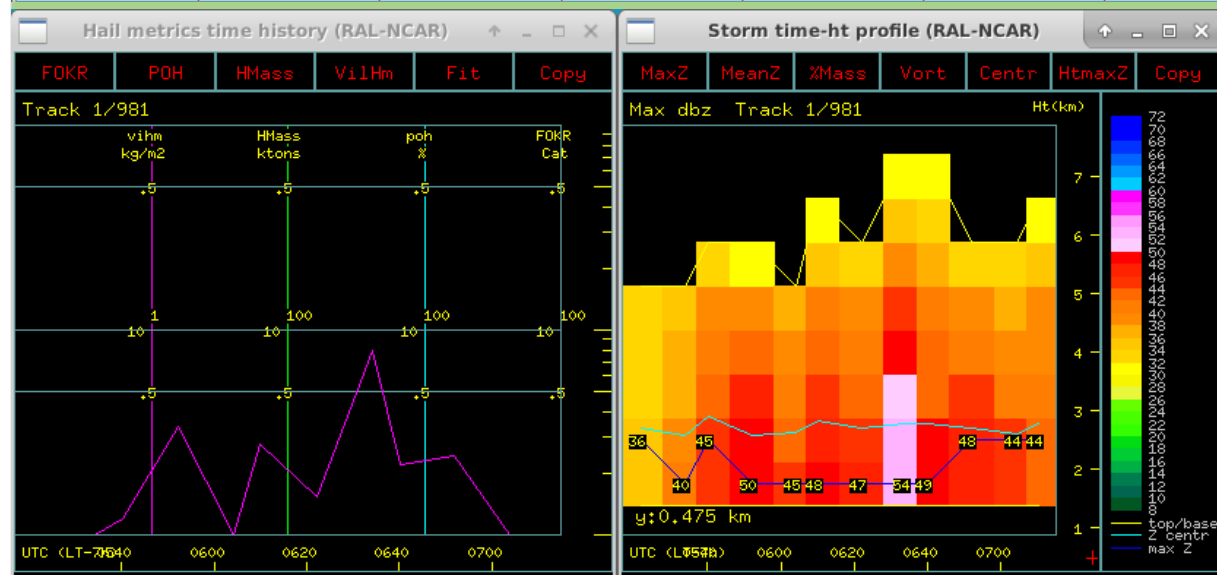
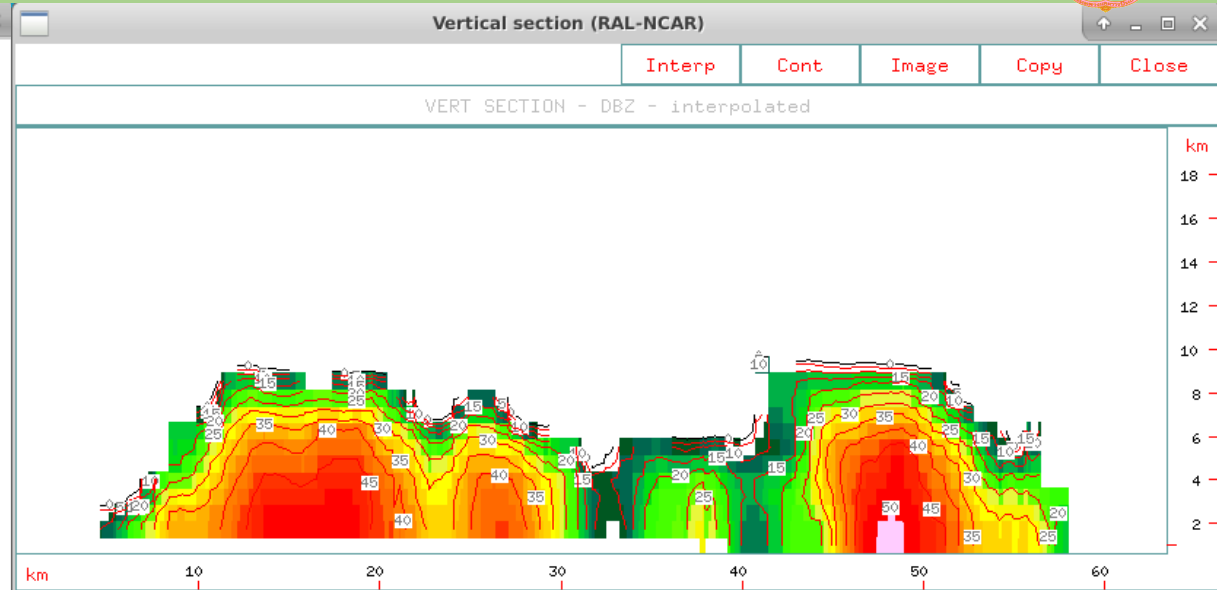
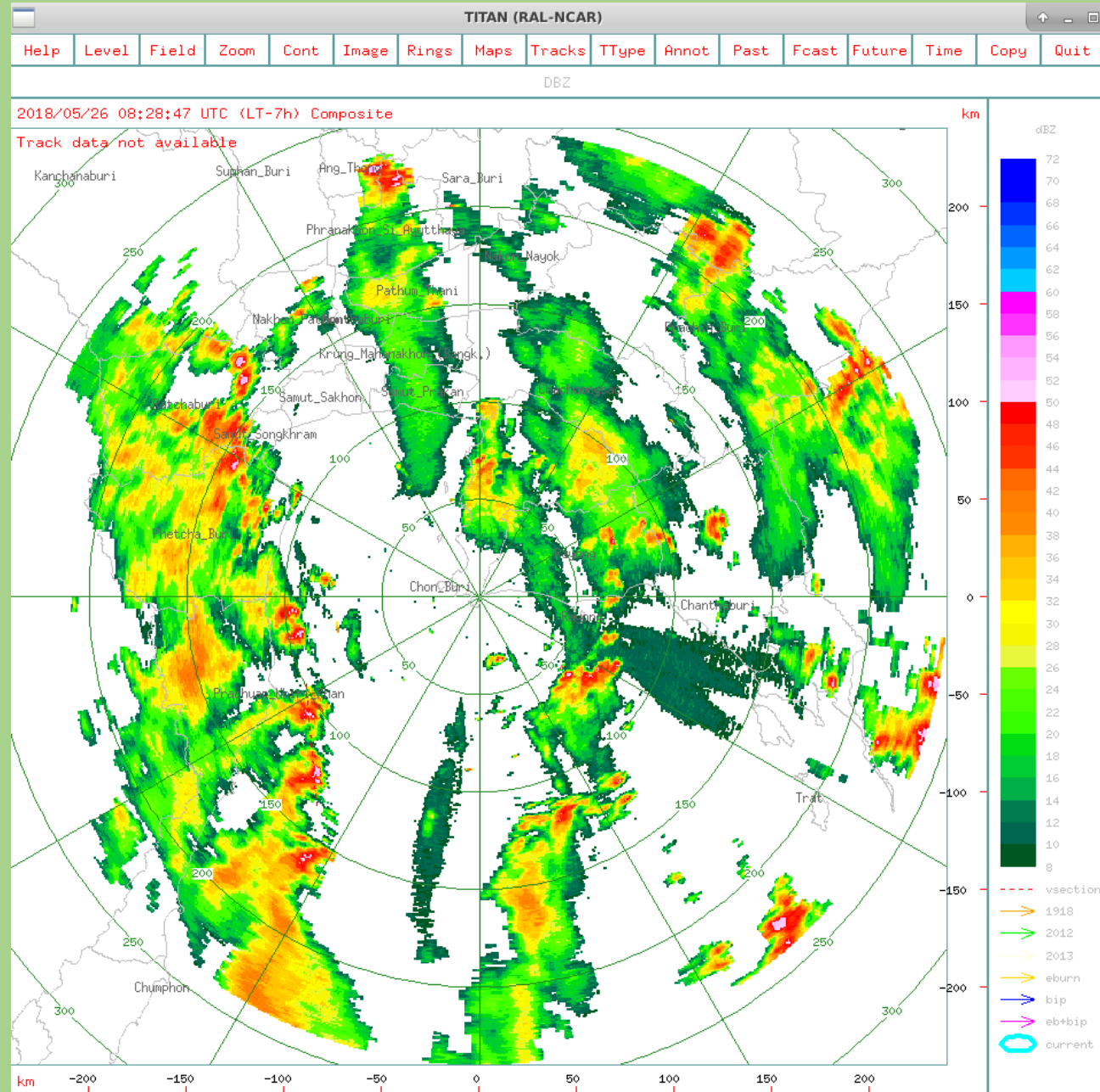
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# Rain storm characteristic analysis via TITAN<sup>(1)</sup> Program



(1) Dixon, M. and G. Wiener, 1993: TITAN: Thunderstorm Identification, Tracking, Analysis, and Nowcasting—A Radar-based Methodology. J. Atmos. Oceanic Technol., 10, 785–797



*International Journal of Applied Sciences and Innovation*

Vol. 2016, no. 1, pp. 58-70

ISSN: 2458-6501

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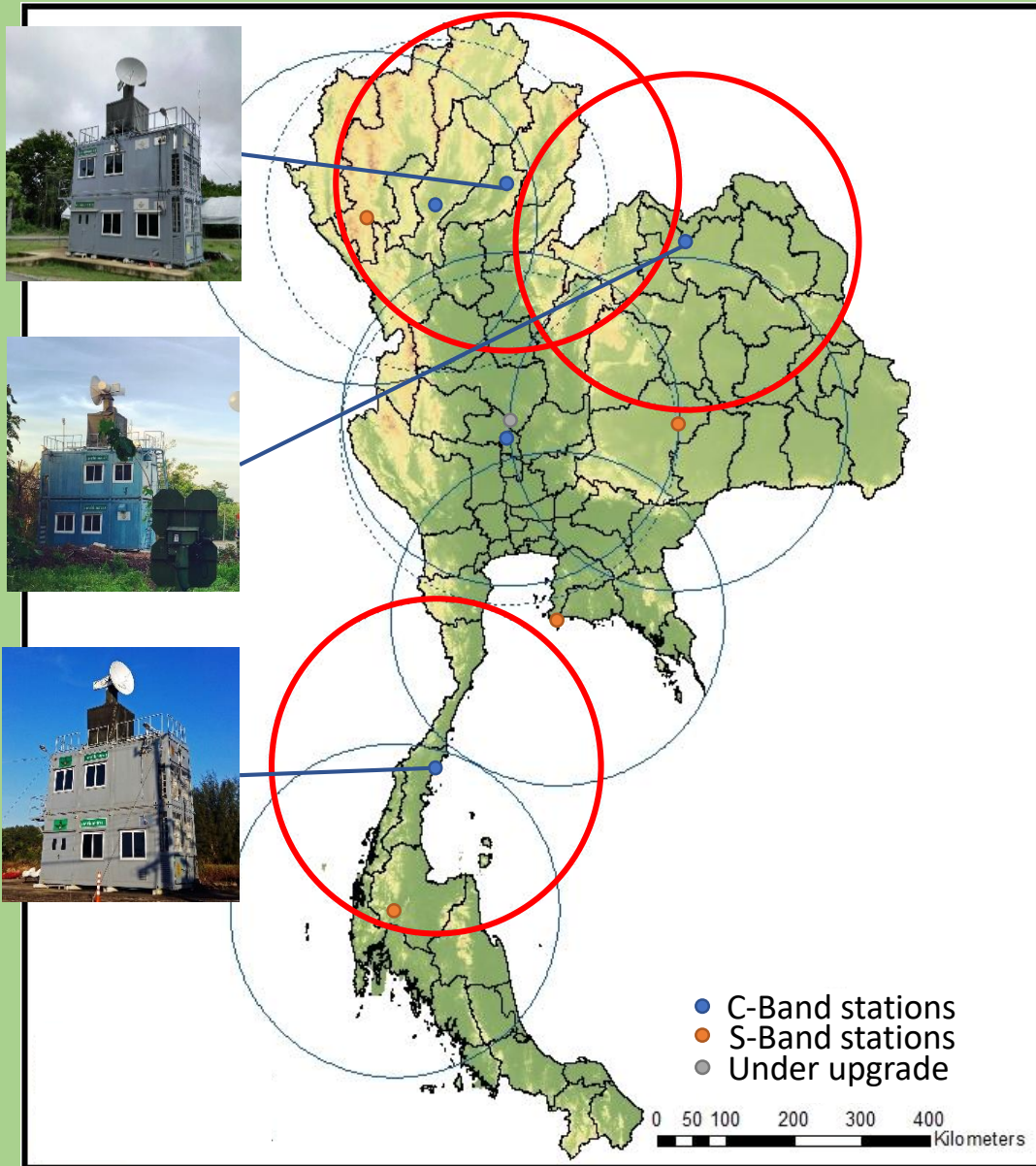
## **Analysis of Rainstorm Characteristics in Eastern Regions of Thailand**

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## *On going activities*

Research Project : “Calibration Z-R  
relation ship for C-band stations”  
(2018-2020)





*Thank you for your kind attention*

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*6 August 2018*

