

Spatiotemporal modeling of relative risk of malaria infection along Thailand-Myanmar border: the Hlaignbwe Township and Tha-Song-Yang District

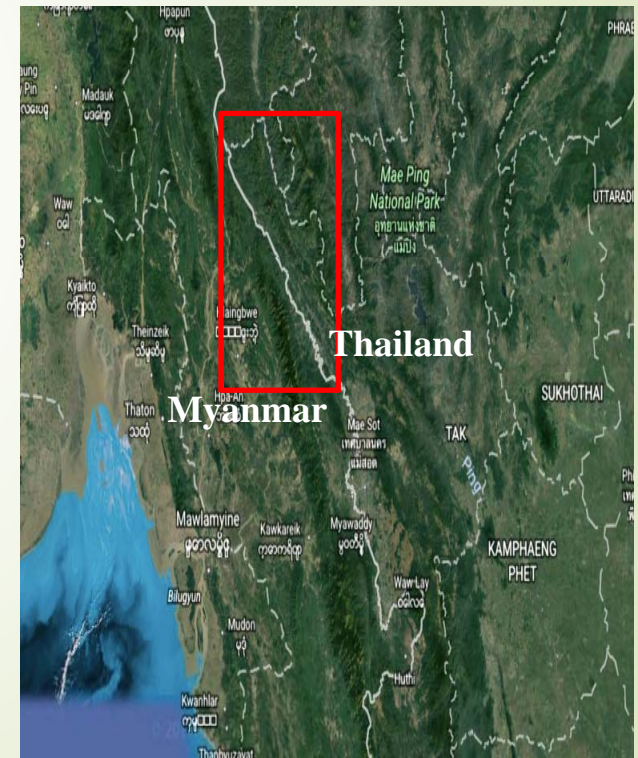
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Aung Minn Thway

M.Sc (Trop Med)

JITMM 2018



Introduction

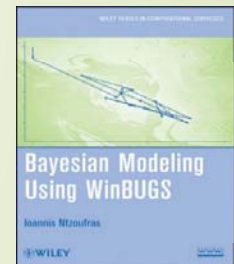
- Global goal of malaria eradication → International borders
- More sophisticated tools → targeted control measure
- Spatiotemporal modeling of relative risk of malaria disease → surveillance and forecasting

Aim

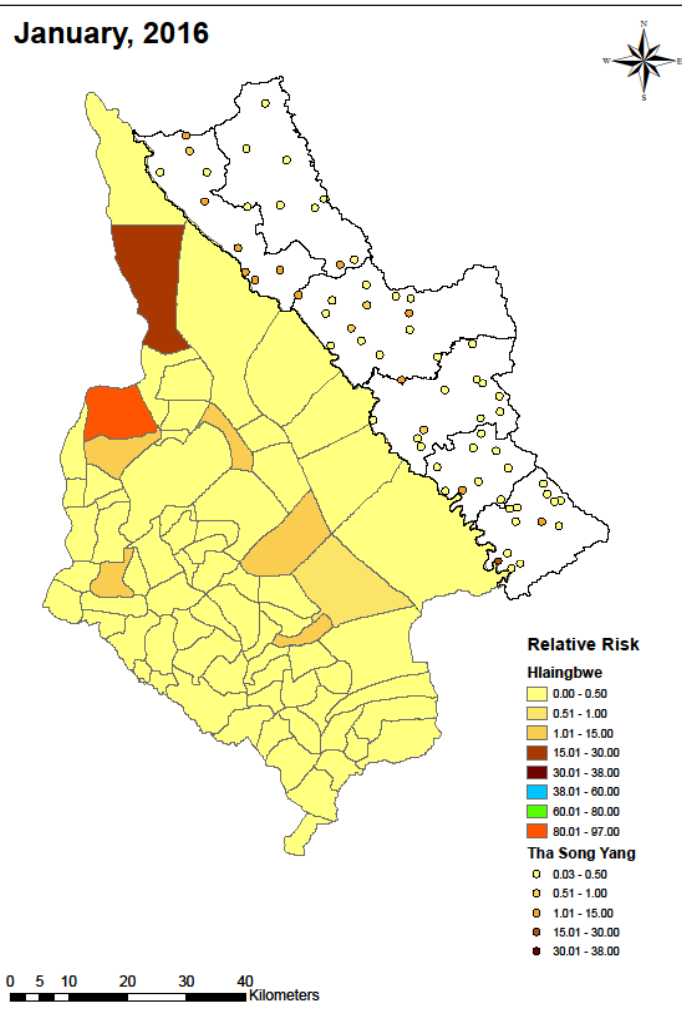
- Generate smoothed estimates of relative risk
- Hierarchical Bayesian spatiotemporal Zero-Inflated Poisson (ZIP) model
(Covariates - age, sex and interaction between age and sex)

Materials and Methods

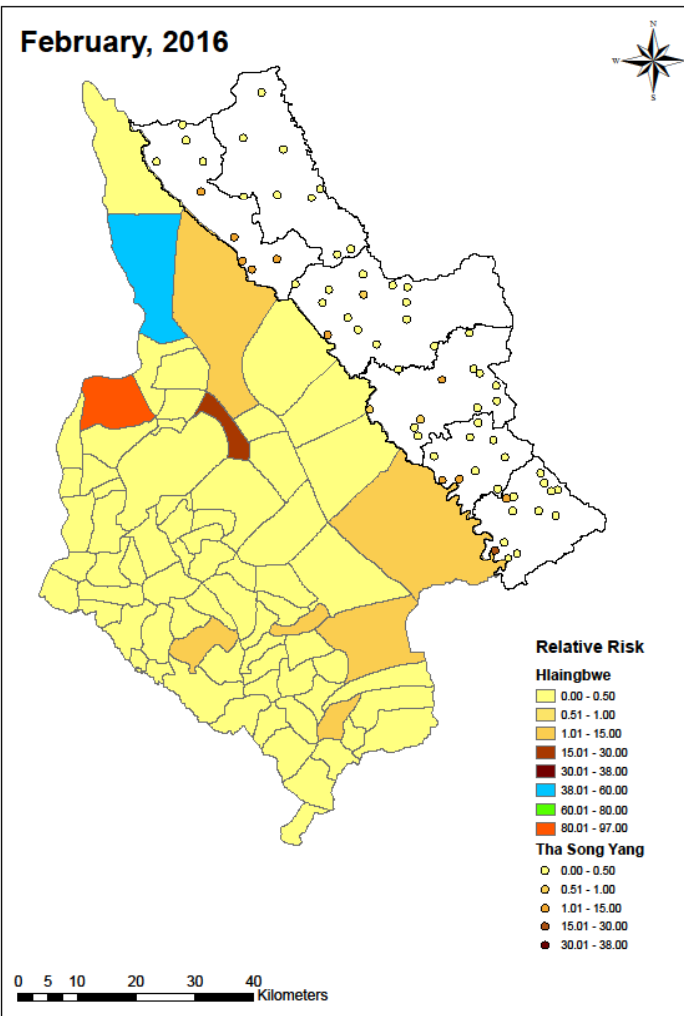
- Data – extracted from malaria surveillance systems during January-December 2016
Thailand – Myanmar border (Hlaingbwe Township and Tha-Song-Yang District)
- Data analysis – WinBUGs software version 1.4.3
- Disease mapping – ArcMap software 10.4.1



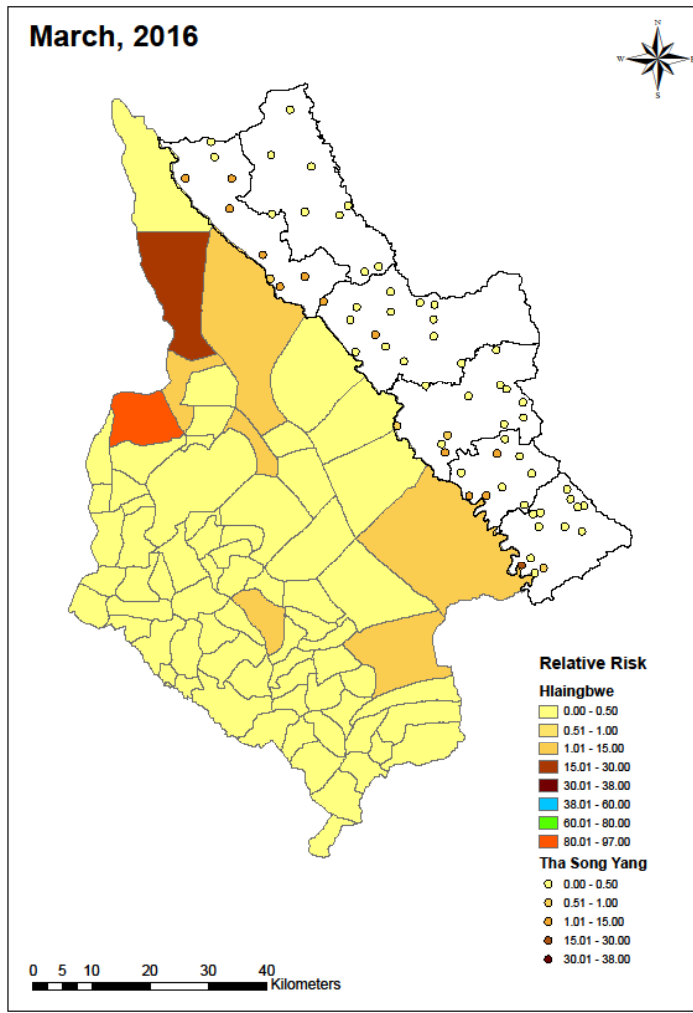
January, 2016



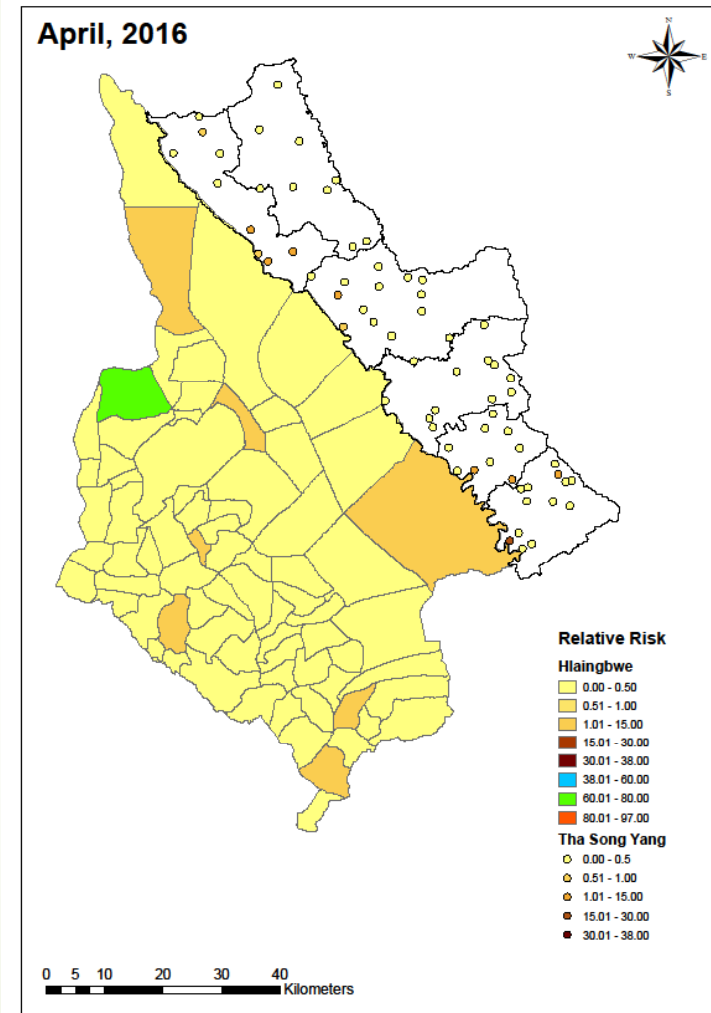
February, 2016



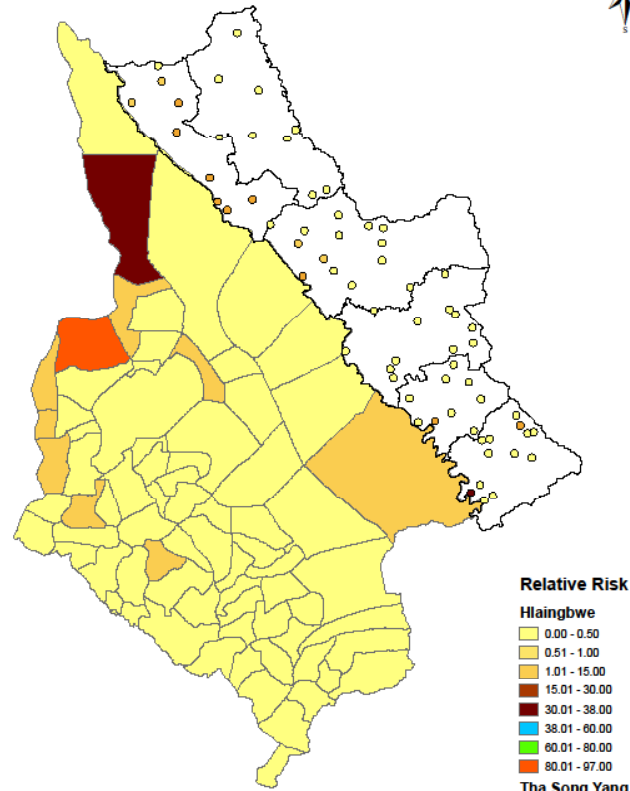
March, 2016



April, 2016

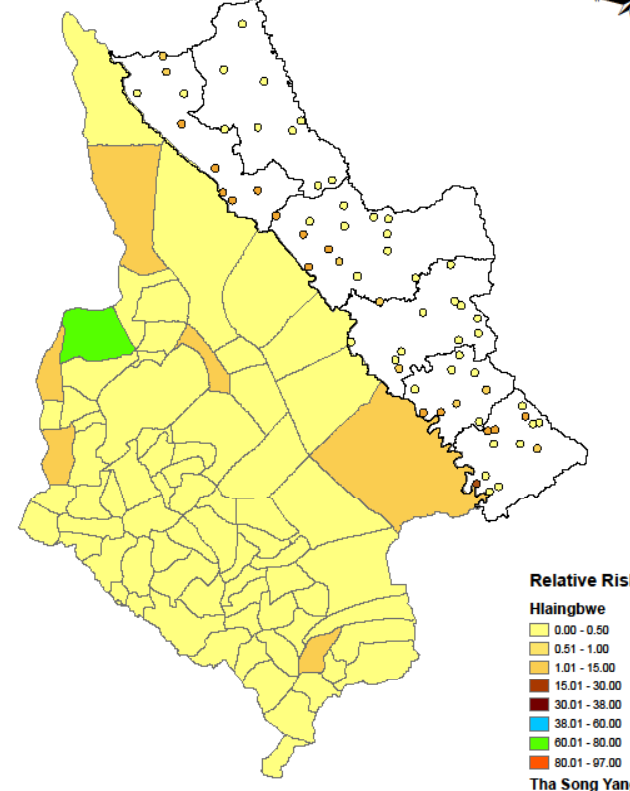


May, 2016

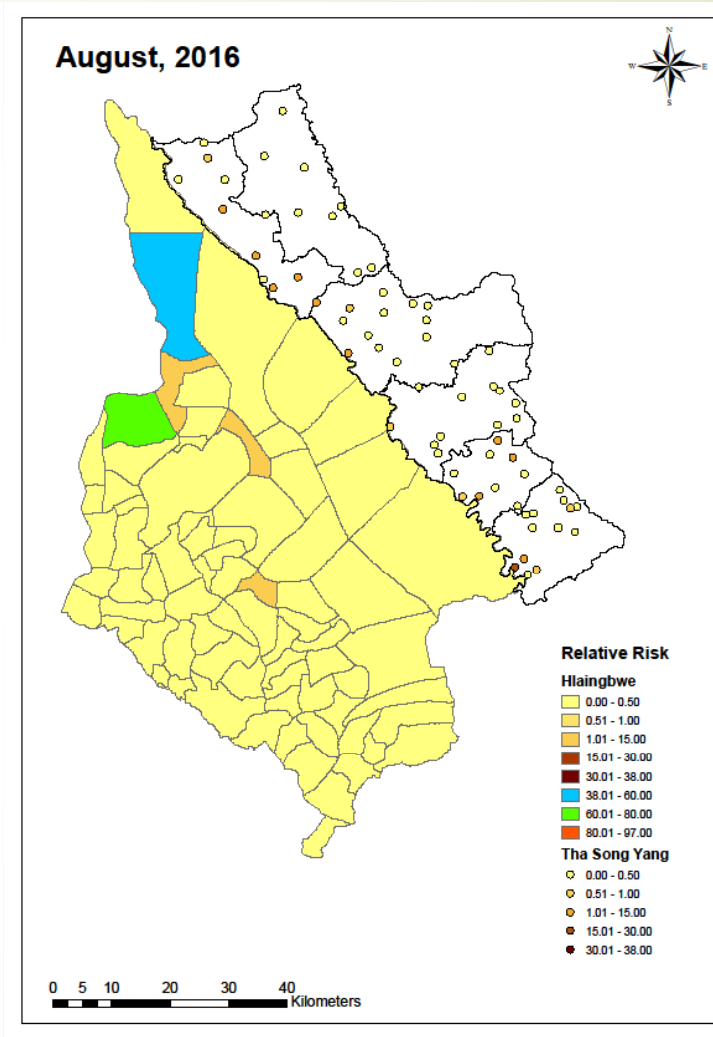
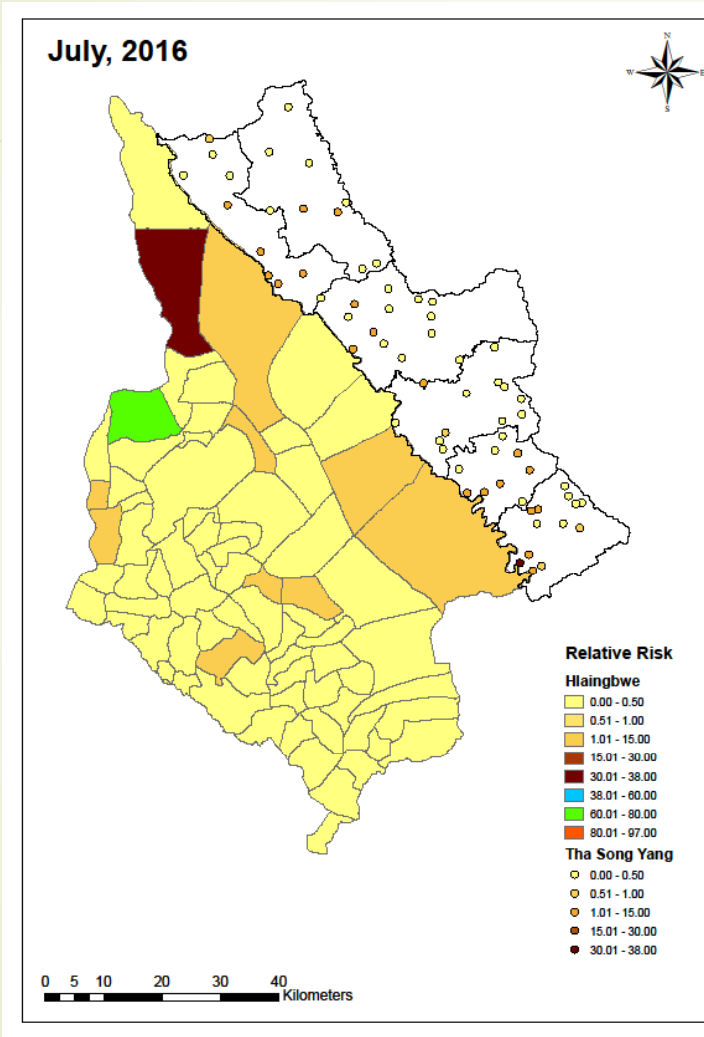


0 5 10 20 30 40 Kilometers

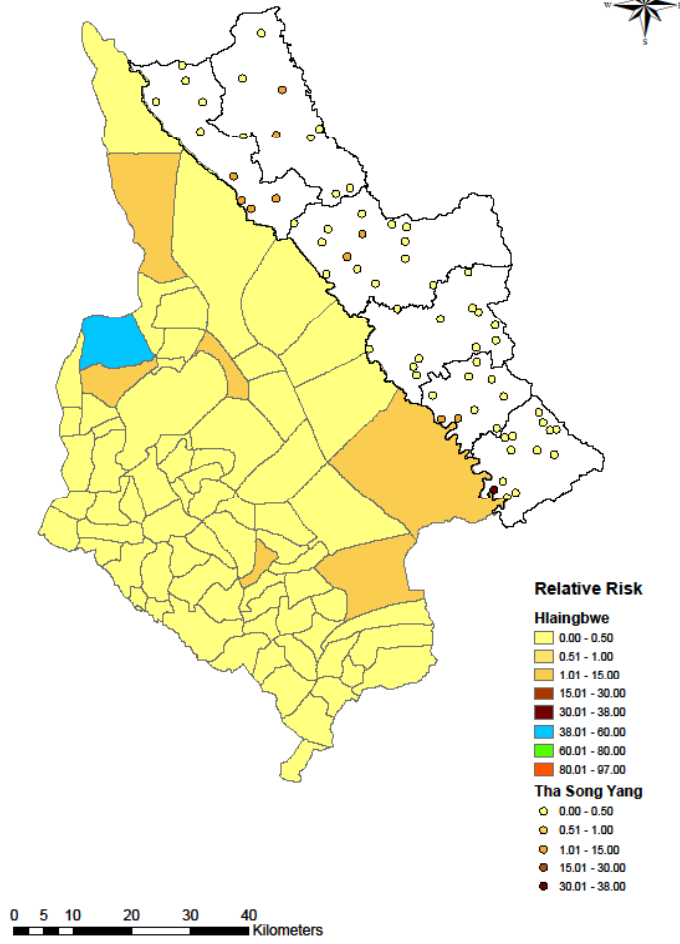
June, 2016



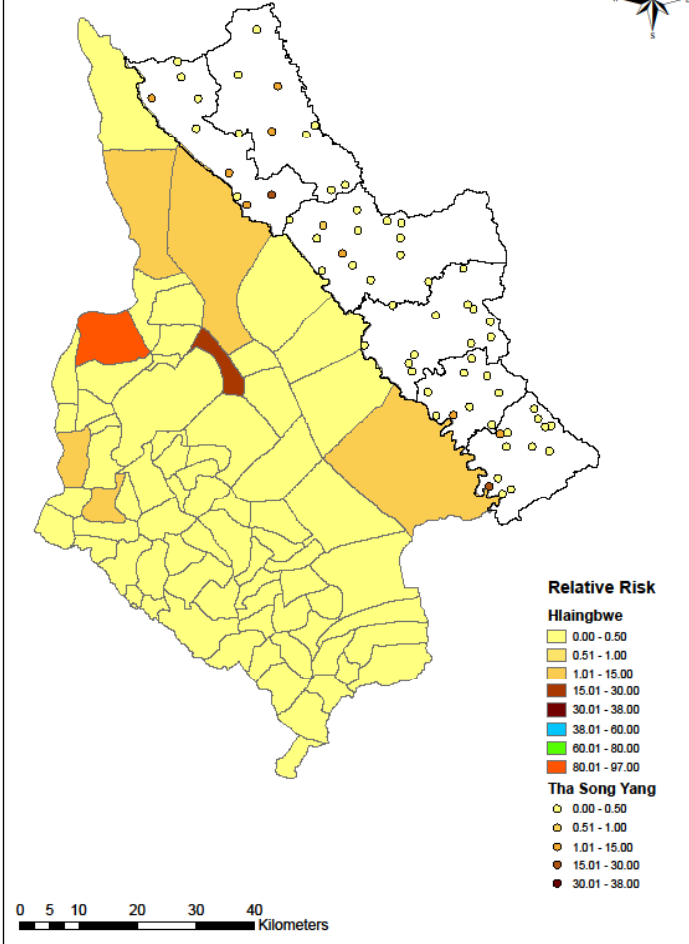
0 5 10 20 30 40 Kilometers



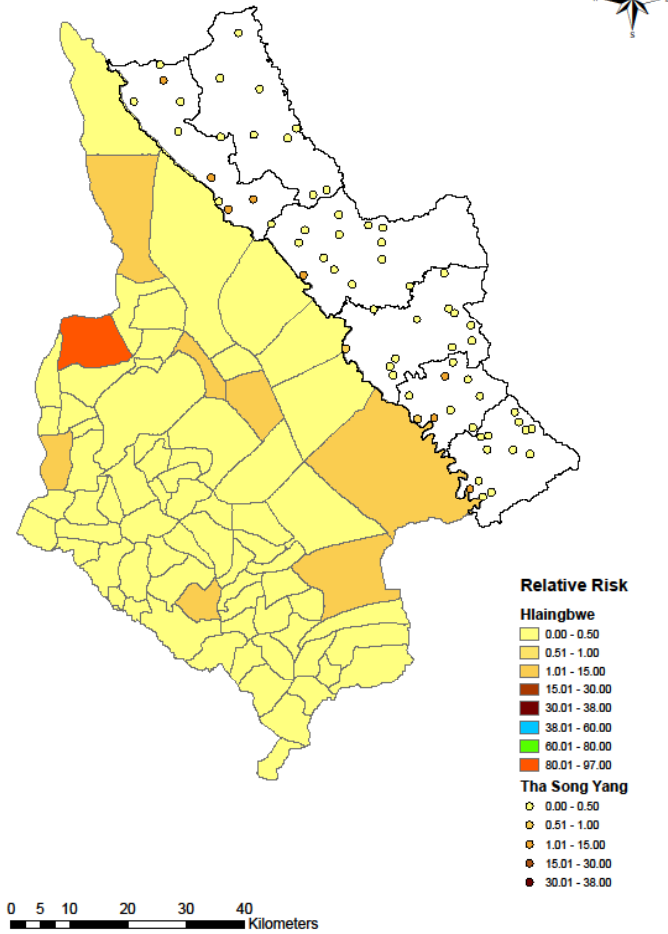
September, 2016



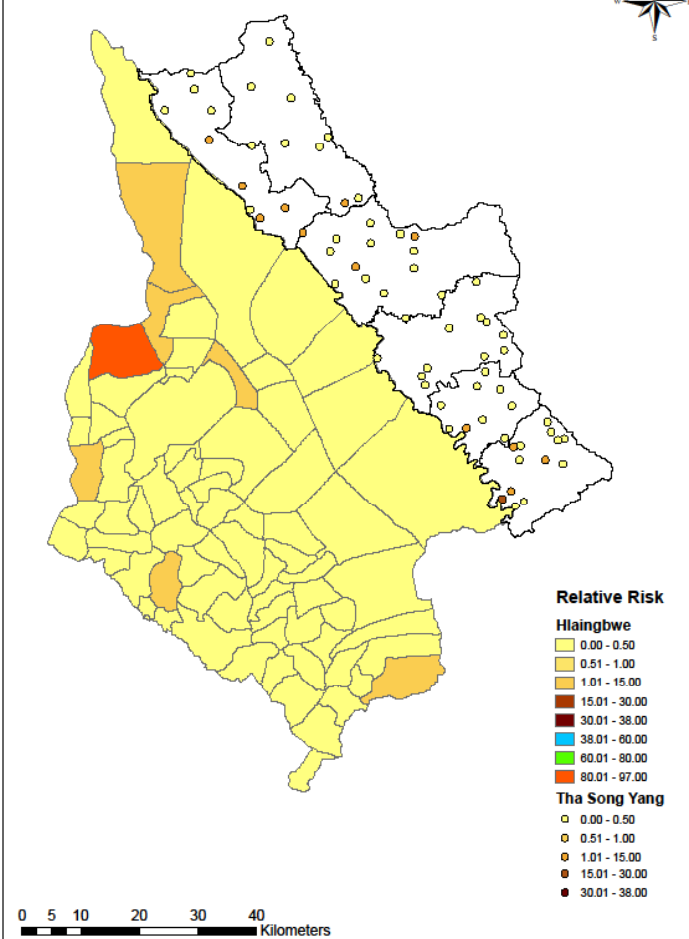
October, 2016



November, 2016



December, 2016



Result and Discussion

	Tha-Song-Yang	Hlaingbwe
Disease clustering	<p>Upper, middle and lower parts along the Thai-Myanmar border (June and July)</p> <p>Upper and lower parts along the Thai-Myanmar border for other months</p>	<p>Most → Inner side</p> <p>Frequently → northern part</p> <p>Some → went together with adjacent areas of Tha-Song-Yang District</p>
	<p>Within and along the Thai-Myanmar border (upper and lower parts) –Tha-Song-Yang Upper and inner border area - Hlaingbwe</p>	
Hot Spot	<p>Some appeared along the Thai-Myanmar border</p> <p>Some scattered over the areas (far away from the border)</p>	<p>Some → inner side far away from the border area</p> <p>Only one or two → along the Thai-Myanmar border in some months</p>
	<p>Along the Thai-Myanmar border and far away from the border area (Tha-Song-Yang and Hlaingbwe)</p>	

Conclusion

- Presented maps → importance of preventive actions → the common goal of malaria elimination

➤ **Related publication**

Research | **Open Access**

Bayesian spatiotemporal analysis of malaria infection along an international border: Hlaingbwe Township in Myanmar and Tha-Song-Yang District in Thailand

Aung Minn Thway, Chawarat Rotejanaprasert, Jetsumon Sattabongkot, Siam Lawawirojwong, Aung Thi, Tin Maung Hlaing, Thiha Myint Soe and Jaranit Kaewkungwal ✉

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THANK YOU