



World Organisation
for Animal Health



SEACFMD EPIDEMIOLOGY NETWORK MEETING

Global and Regional FMD updates

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SRRSEA

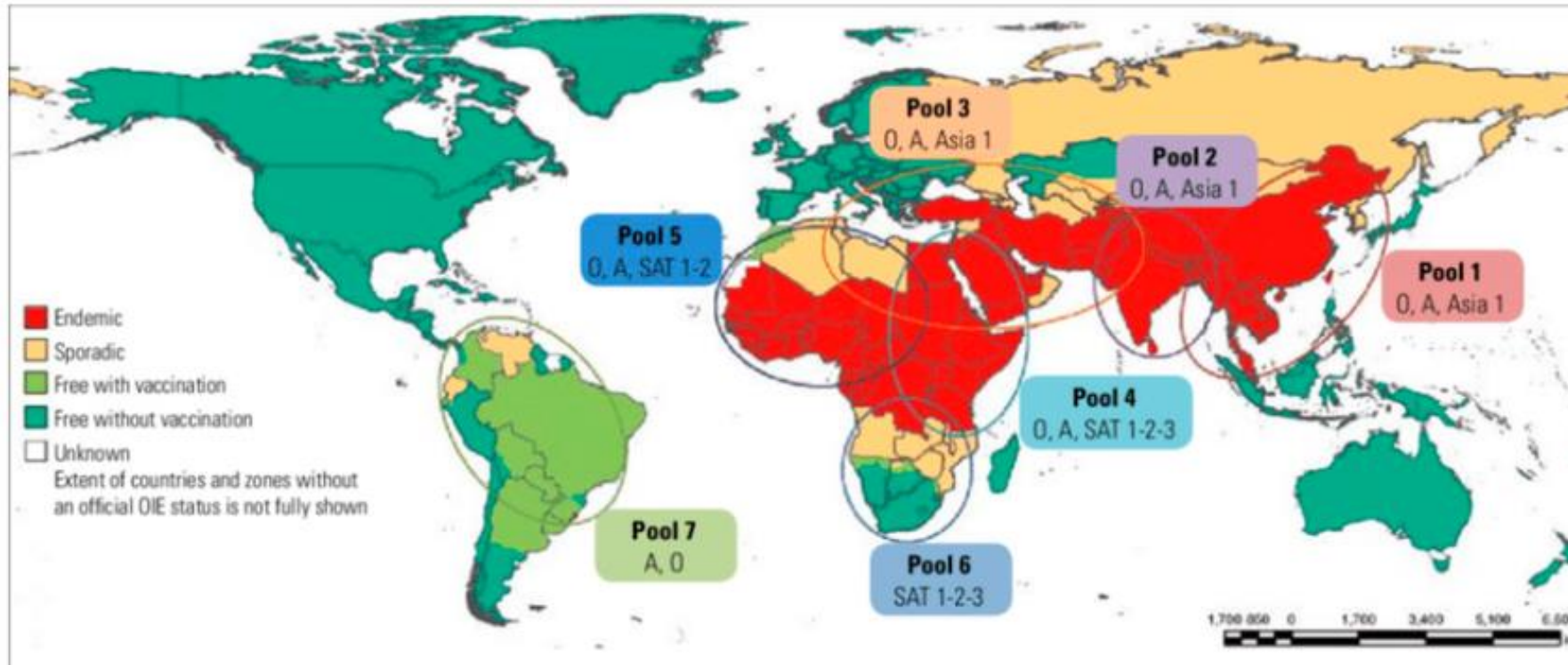
13-15 May 2025,
Qingdao, People's Republic of China

Outline

- Global FMD situation and new developments
- Regional FMD situation
- FMD risk to SEACFMD Region
- Observed Conclusion /Discussion



Global FMD situation

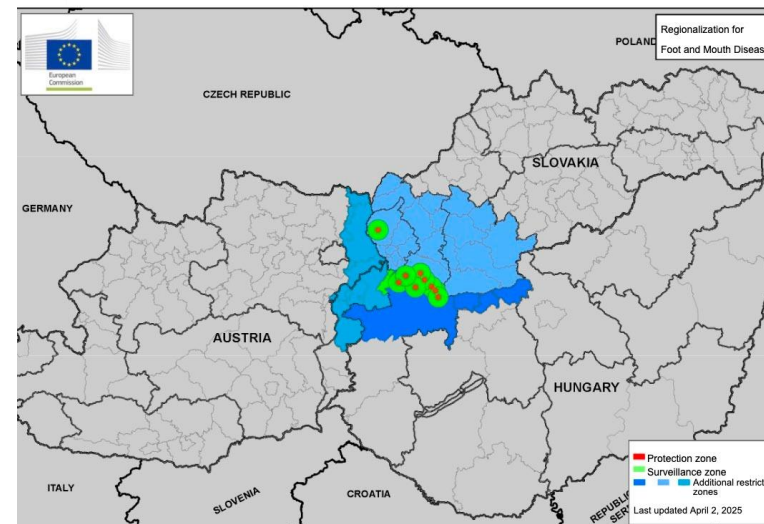
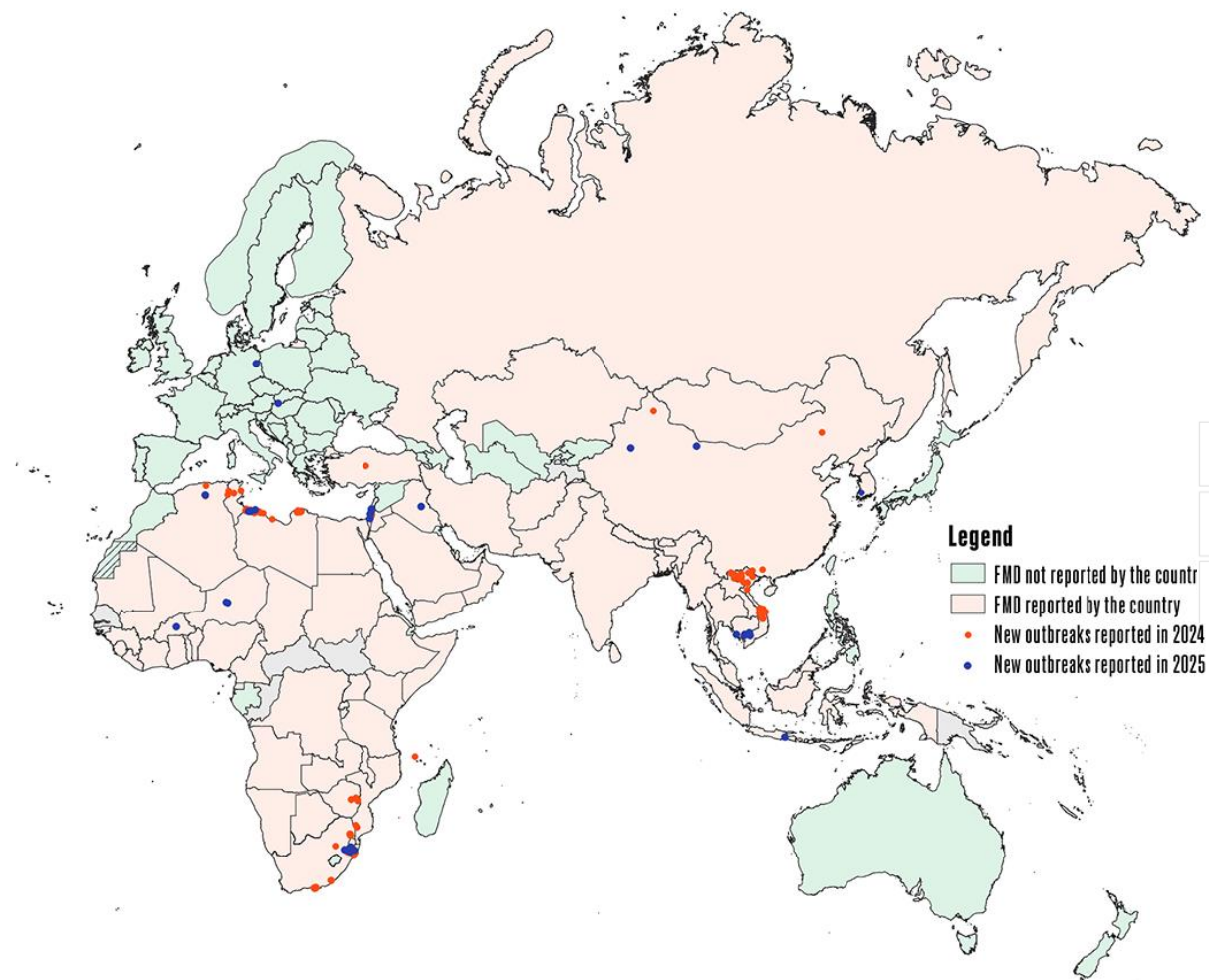


FMD epidemiology:

- Seven pools that maintain specific FMDV strains
- Endemic in Africa, Middle East and Asia

Global FMD situation

Exceptional epidemiological events - FMD



<input type="checkbox"/>	<input checked="" type="radio"/>	Hungary	FUR_14	Foot and mouth disease virus (Inf. with)	0	Recurrence of an eradicated disease	2025/03/03	2025/05/07
<input type="checkbox"/>	<input checked="" type="radio"/>	Slovakia	FUR_5	Foot and mouth disease virus (Inf. with)	0	Recurrence of an eradicated disease	2025/03/20	2025/04/17
<input type="checkbox"/>	<input checked="" type="radio"/>	Germany	FUR_5	Foot and mouth disease virus (Inf. with)	0	Recurrence of an eradicated disease	2025/01/09	2025/04/16

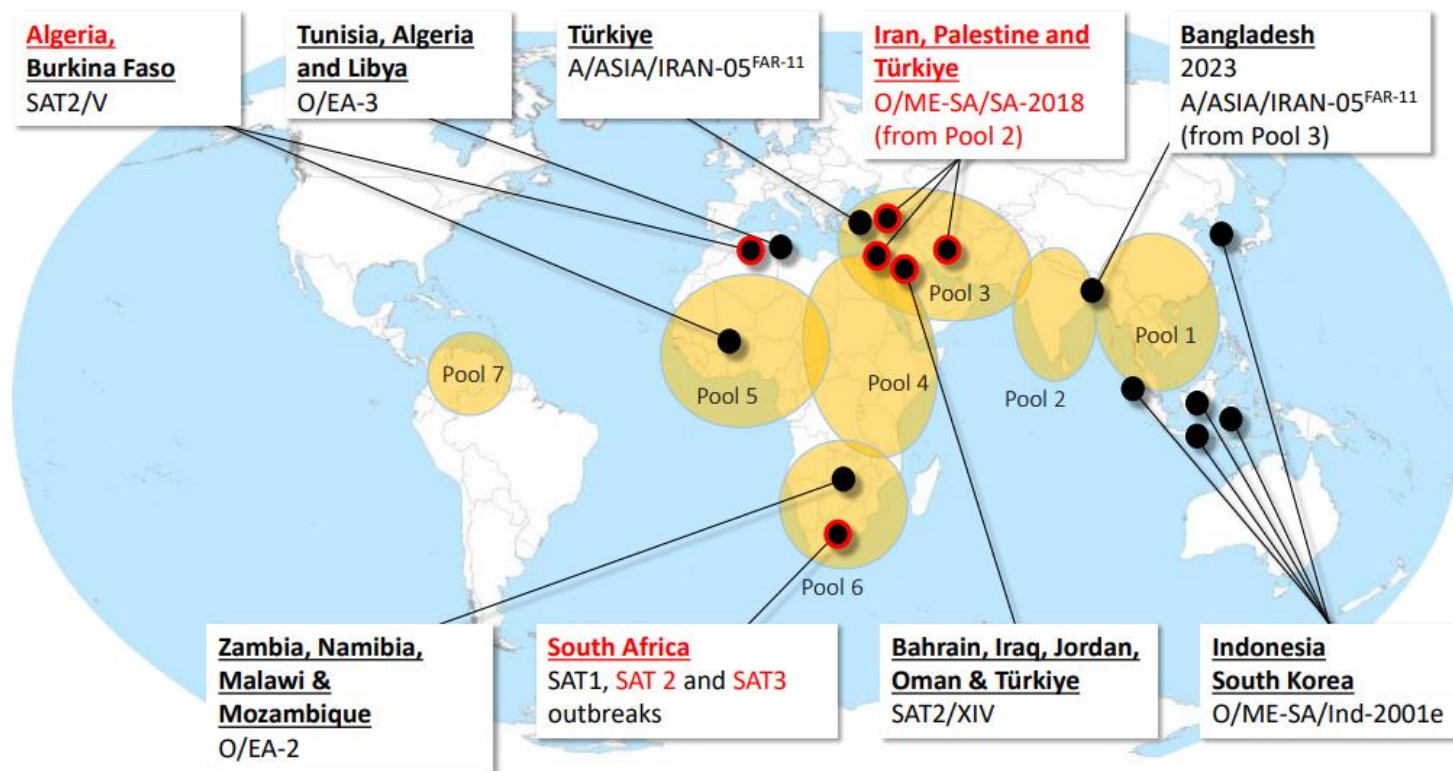
Germany
Jan 2025
O/ME-SA/SA-2018

Hungary, Slovakia
Mar 2025
O/ME-SA/PanAsia-2

Data source: WAHIS, March 2025

Global FMD situation

Don King, Pirbright, January 2025



January 2025

SAT2:
2022: Iraq
2023: Jordan, Turkey, Bahrain and Oman

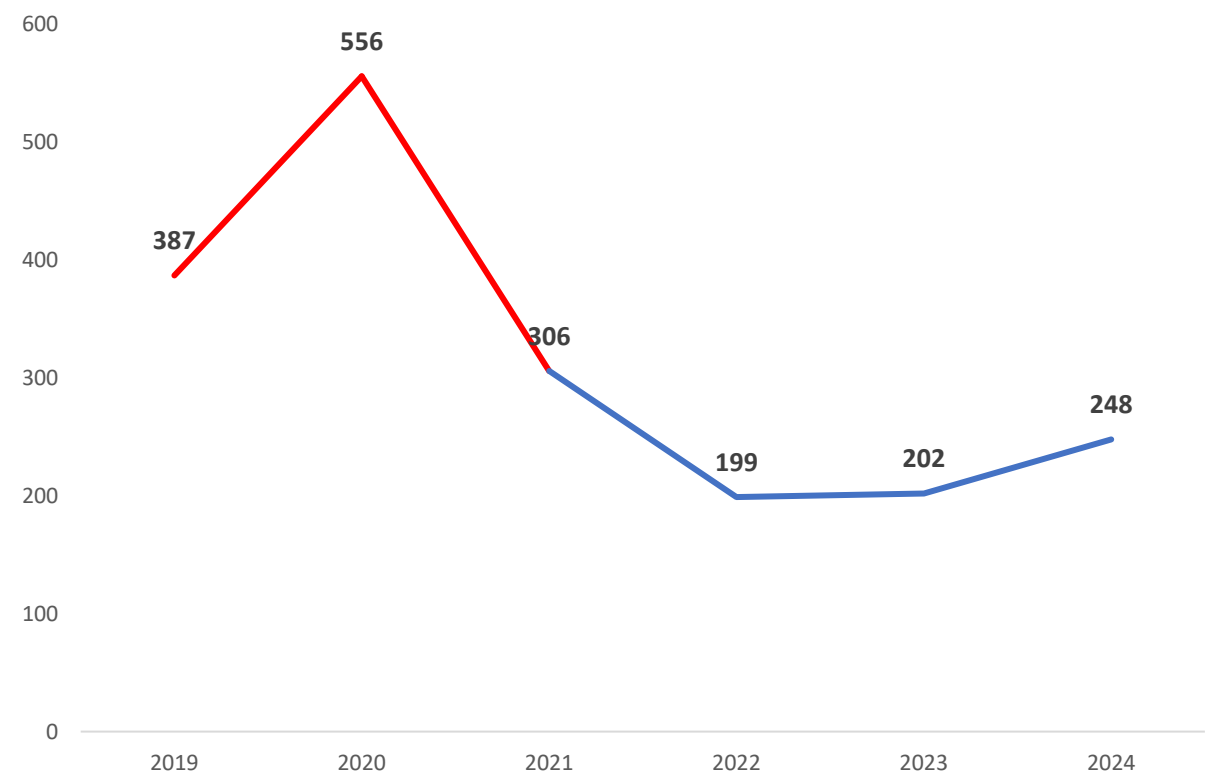
SAT1
2025: Bahrain and Iraq

<https://www.wrlfmd.org/reference-laboratory-reports>
[WOAH-FAO FMD Ref Lab Report Oct-Dec 2024.pdf](#)



FMD outbreak reported in 2019-2024

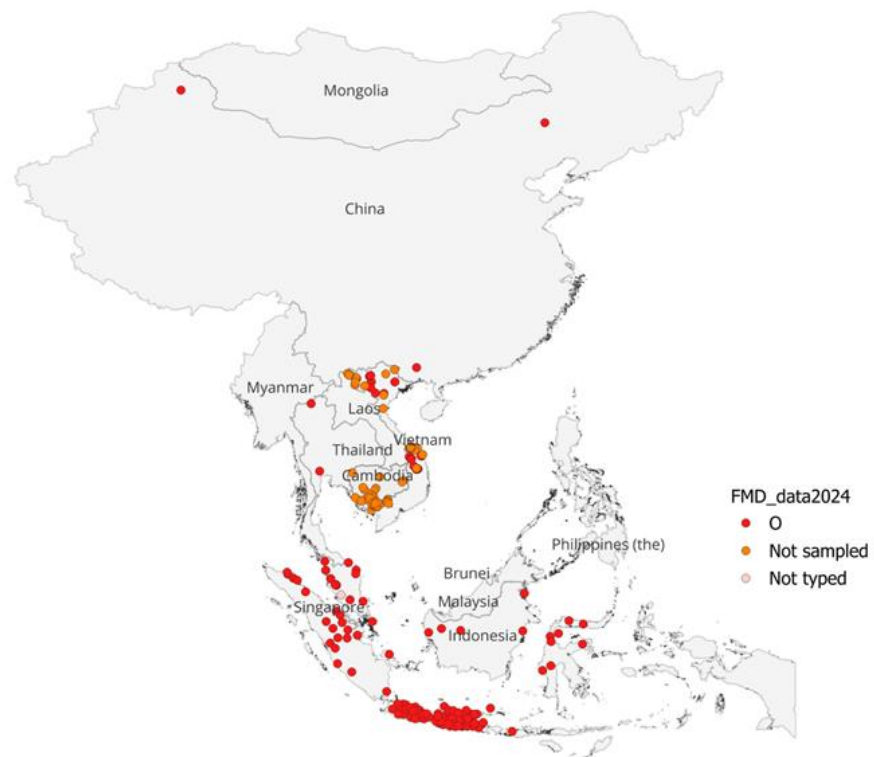
Reported cases by year



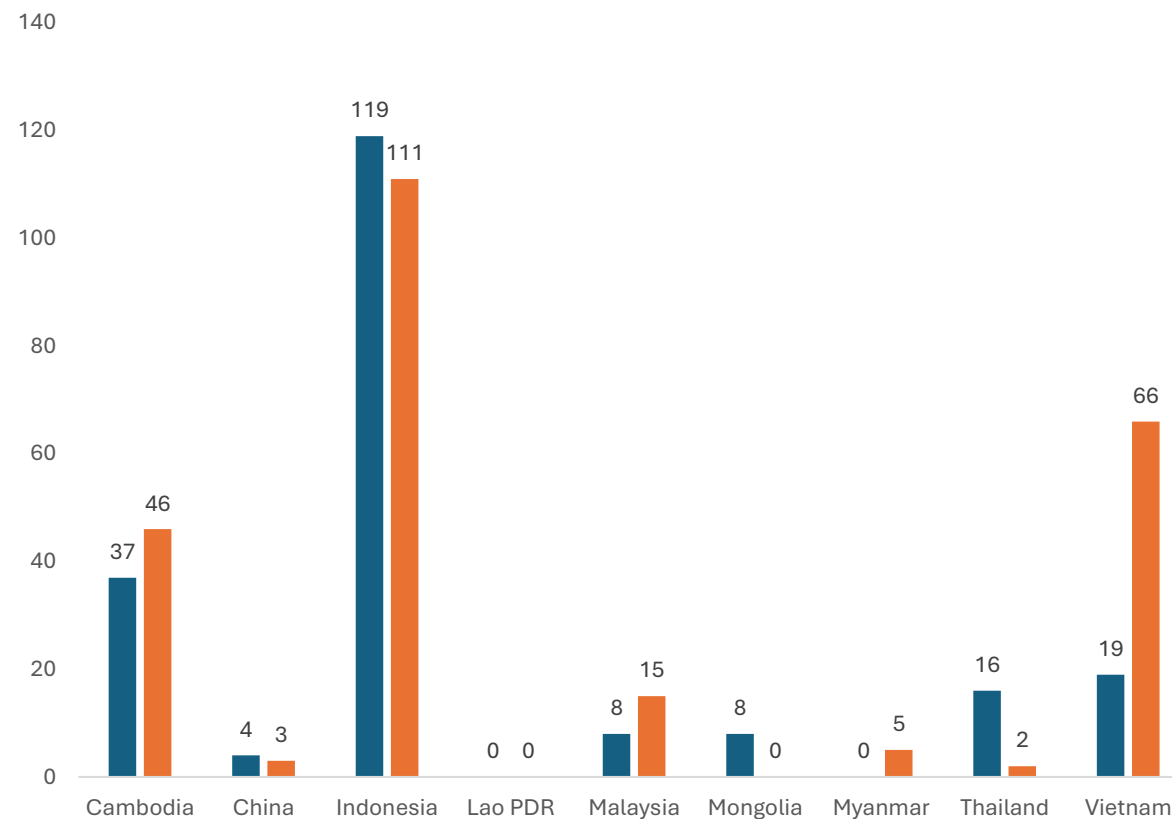
	2019	2020	2021	2022	2023	2024
Cambodia	32	248	36		37	46
China	6	4	3	1	4	3
Indonesia				50	119	111
LaoPDR	63	55	0	0	0	0
Malaysia	39	52	26	13	8	15
Mongolia	0	0	101	3	0	0
Myanmar	28	3	4	0	0	5
Thailand	194	218	47	110	16	2
Vietnam	25	31	89	22	19	66



FMD outbreak reported 2023-2024



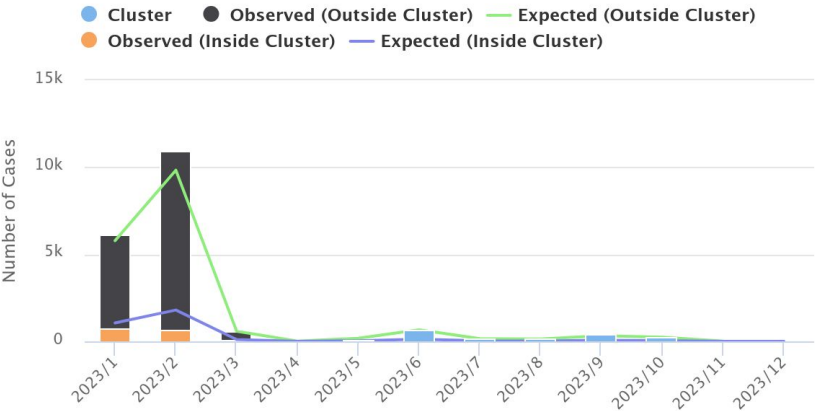
Outbreak in 2023-2024



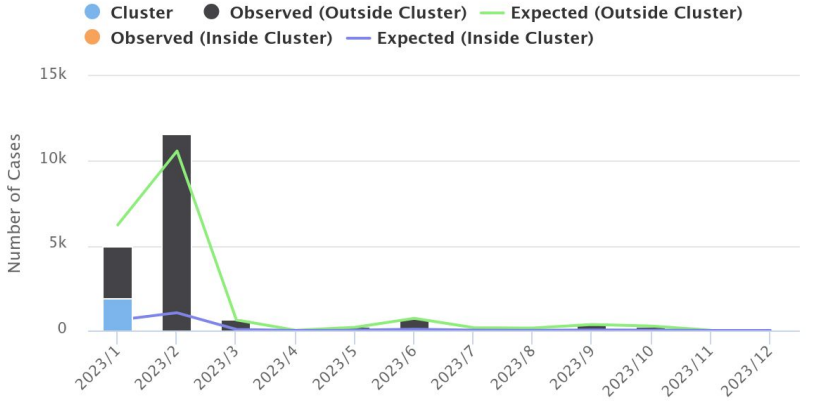
Temporal analysis 2023

Cambodia,
Malaysia,
Thailand,
Vietnam

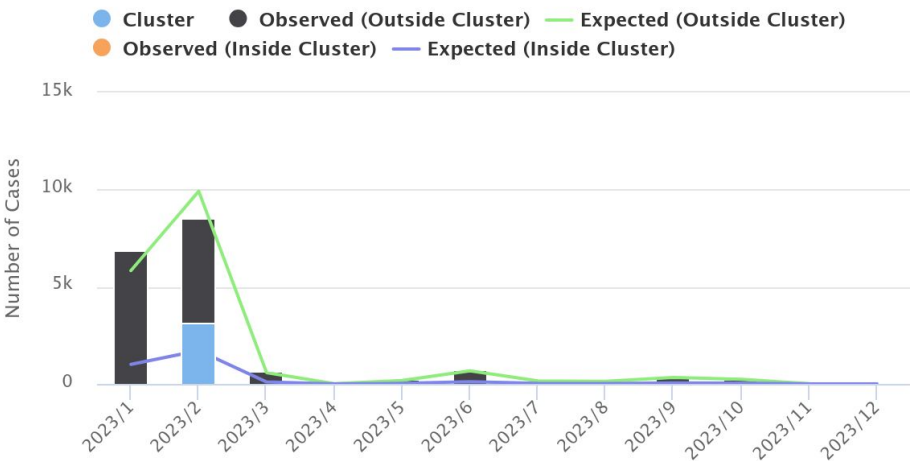
Cluster #1



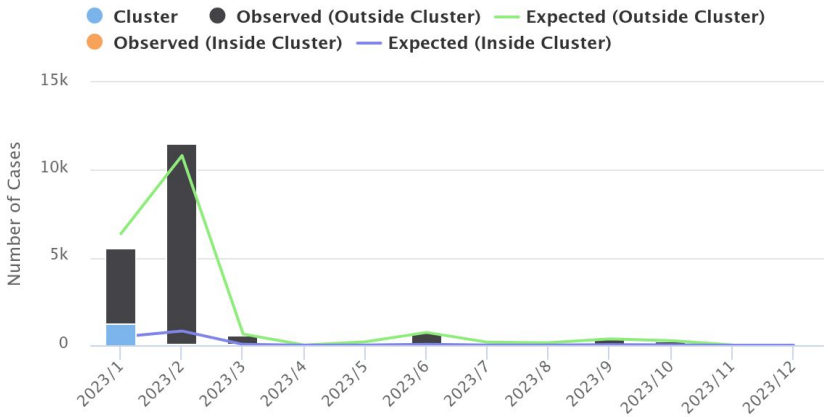
Cluster #2



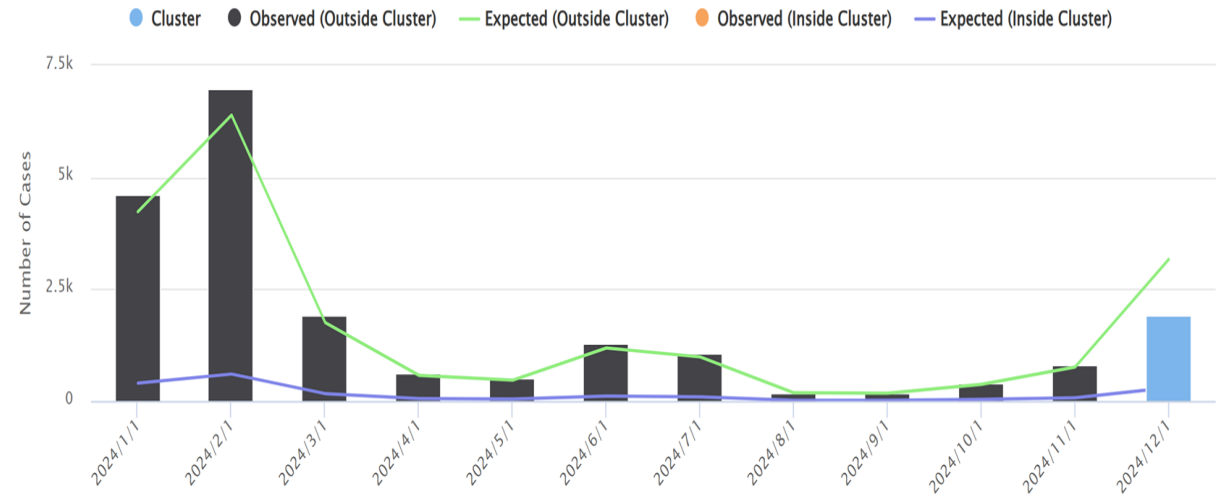
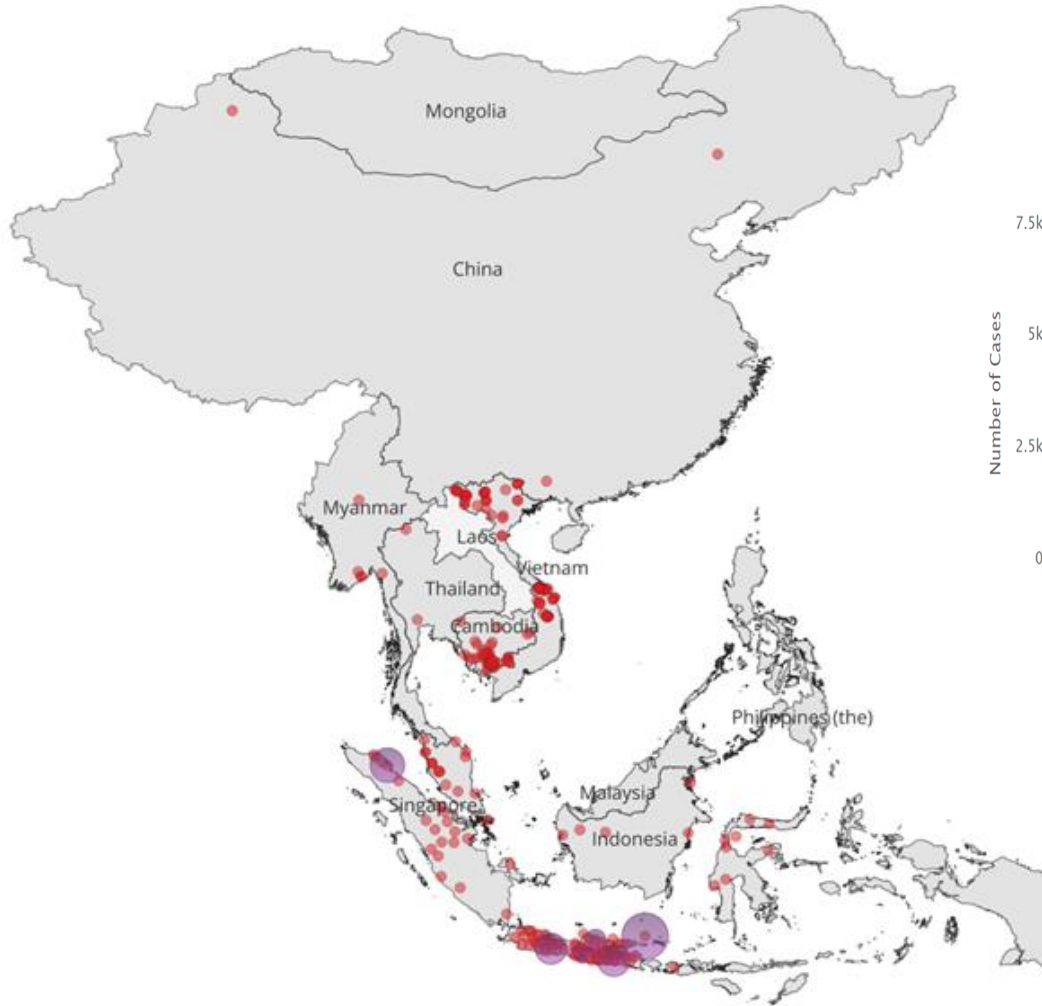
Cluster #3



Cluster #4



Temporal analysis 2024



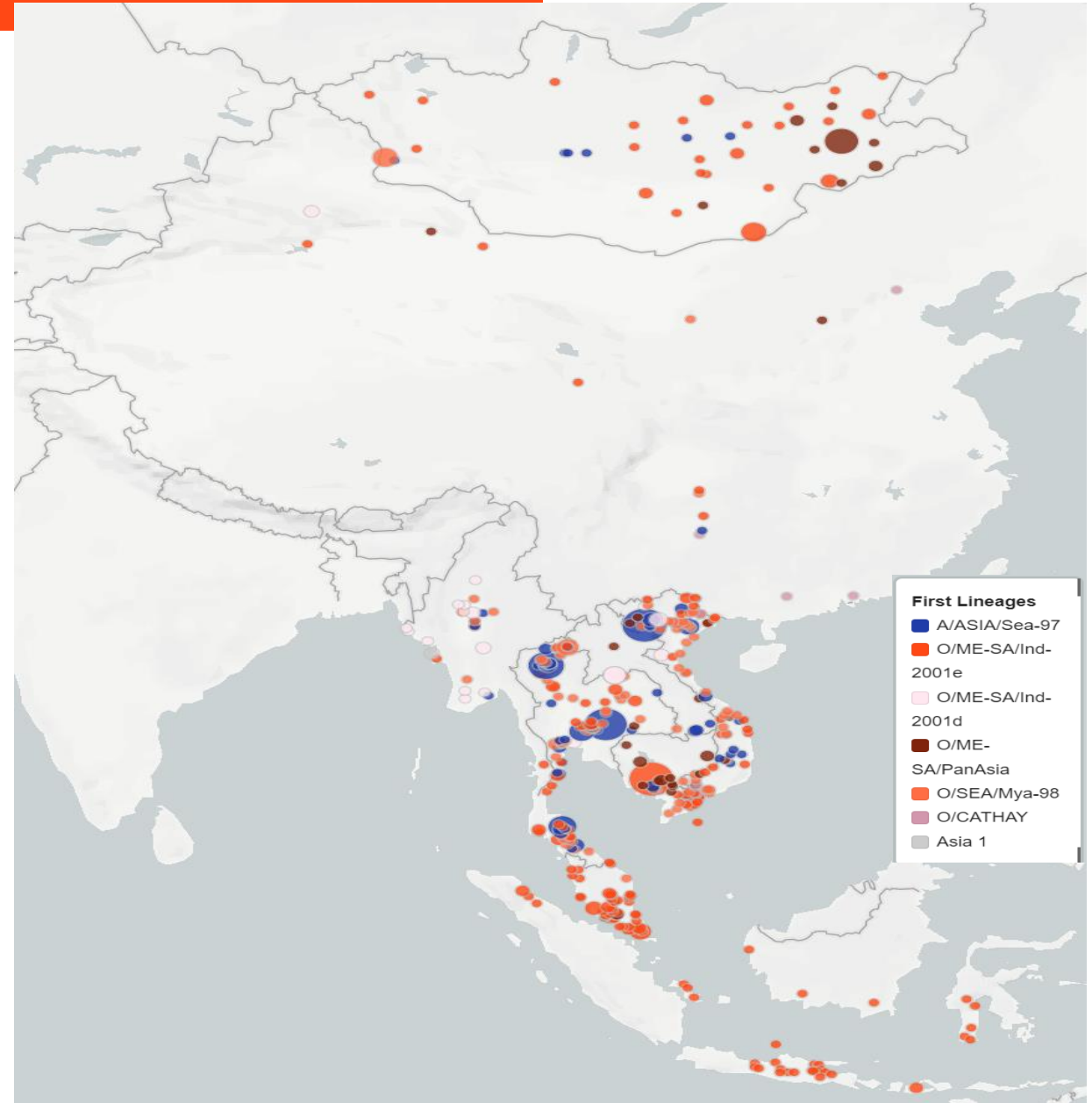
Reported serotypes FMDV:

Serotype O:

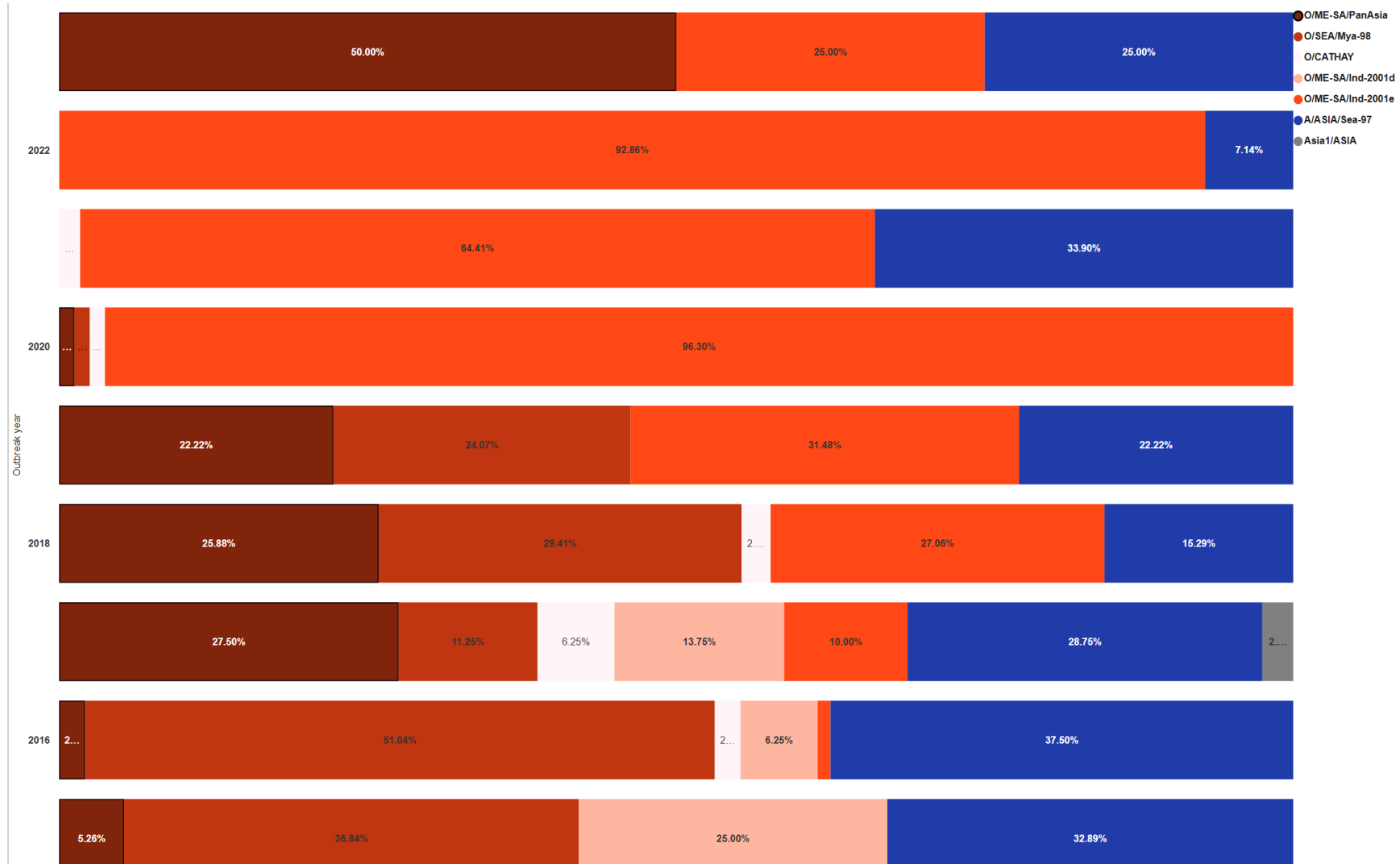
- O/ME-SA/Ind2001e
- O/ME-SA/Ind2001d
- O/ME-SA/Pan Asia
- O/SEA/Mya-98
- O/Cathay (pig adapted)

Serotype A/ASIA/Sea-97

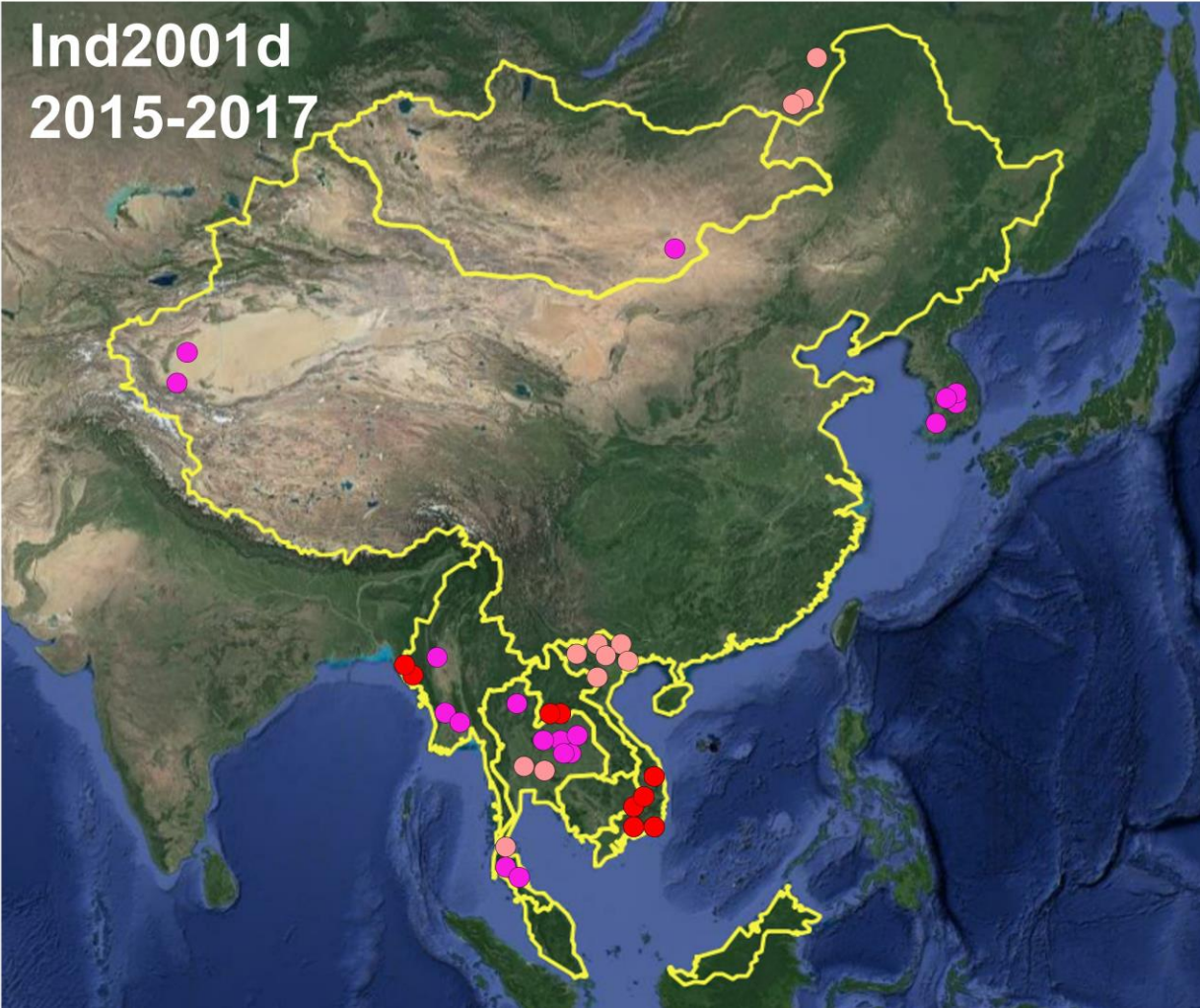
Serotype Asia 1



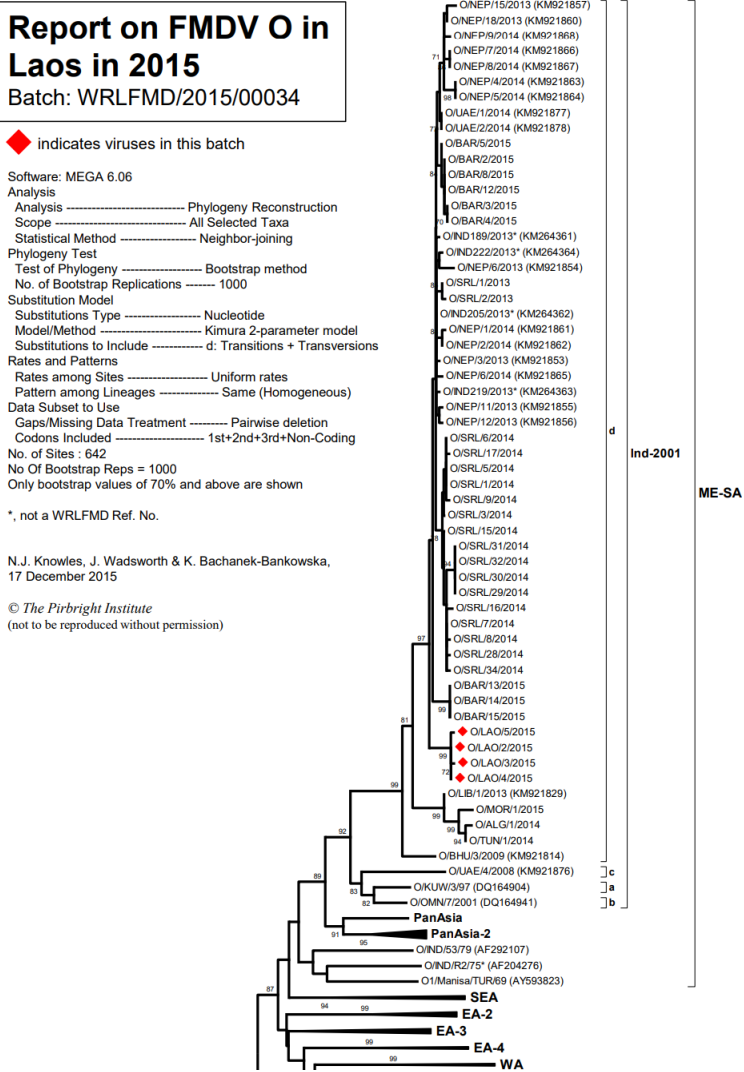
Reported serotypes FMDV:



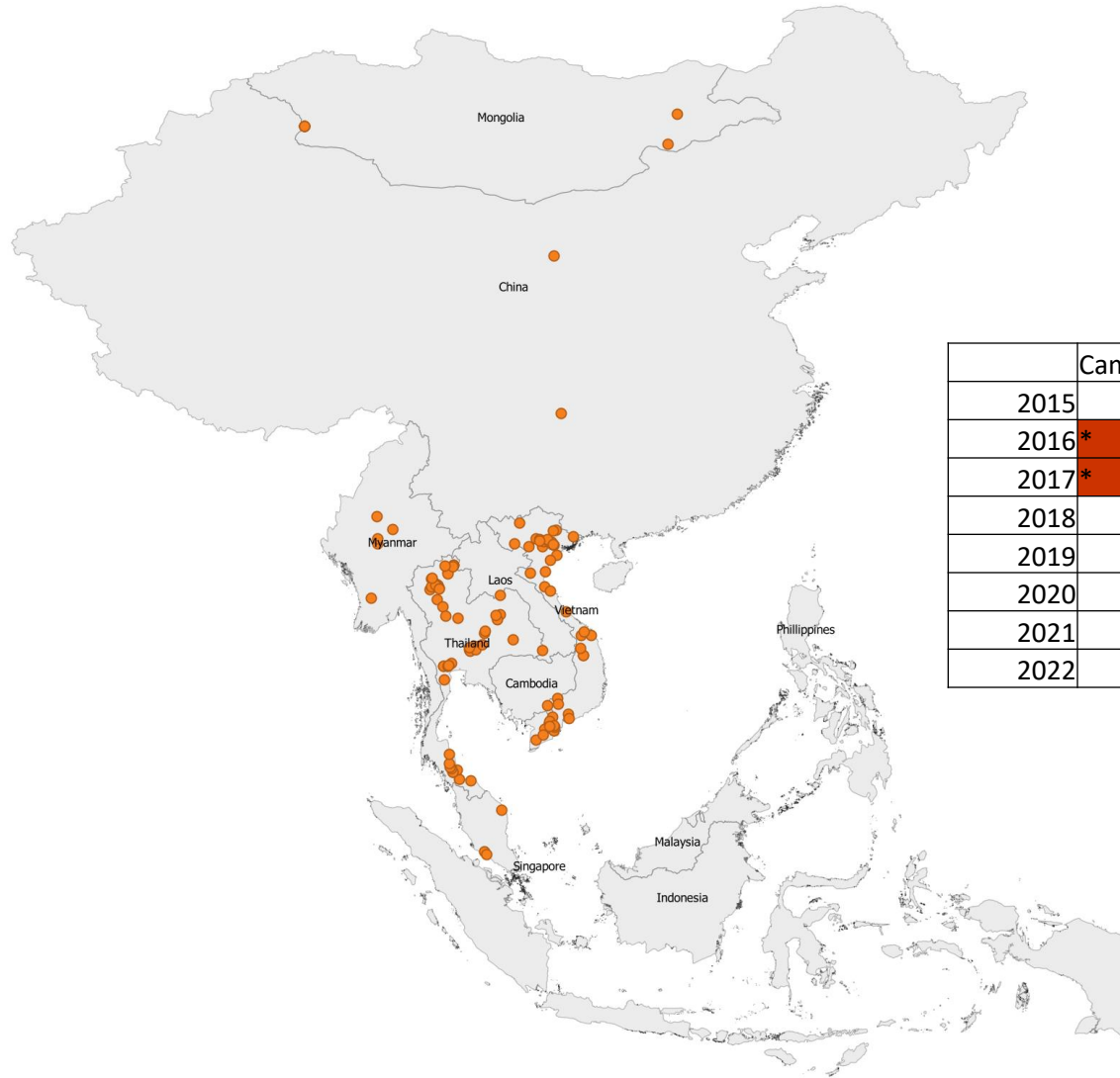
O/ME-SA/Ind2001d



O/ME-SA/Ind2001d
2015- Laos, Myanmar (isolated 2016), Vietnam
2016- Thailand, Vietnam
2017-Myanmar, China, Mongolia, Korea and Russia



O/SEA/Mya-98



	Cambodia	China	Laos	Malaysia	Mongolia	Myanmar	Thailand	Vietnam
2015						*		
2016	*	*				*		
2017	*	*				*		
2018								
2019						*		*
2020		*						
2021						*		
2022								

Between 2015 and 2018, Mya-98 was the most prevalent



O/ME-SA/Pan Asia

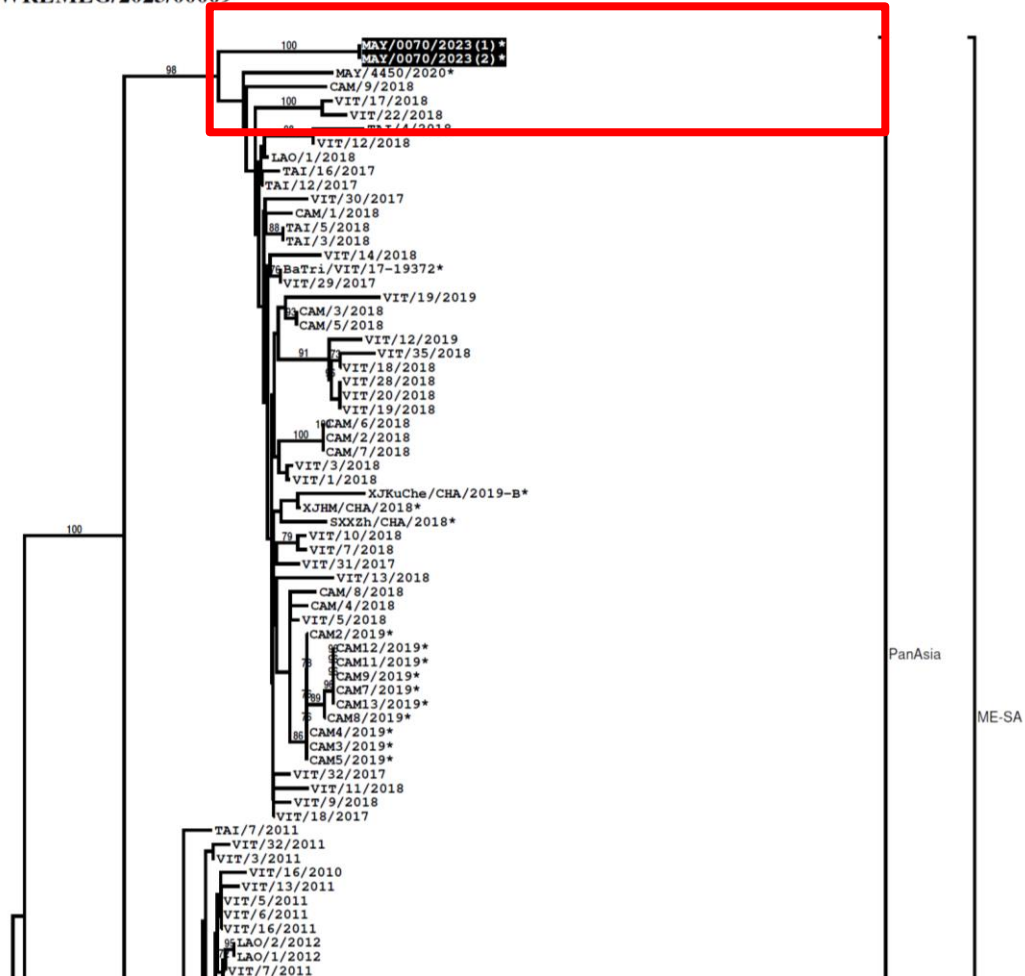


Year	Cambodia	China	Laos	Malaysia	Mongolia	Thailand	Vietnam
2015							
2016							
2017							
2018							
2019		*				*	
2020							
2023							

O/ME-SA/Pan Asia

Report on FMDV O in Malaysia in 2023

Batch: WRLMEG/2023/00009



Most Closely Related Sequences

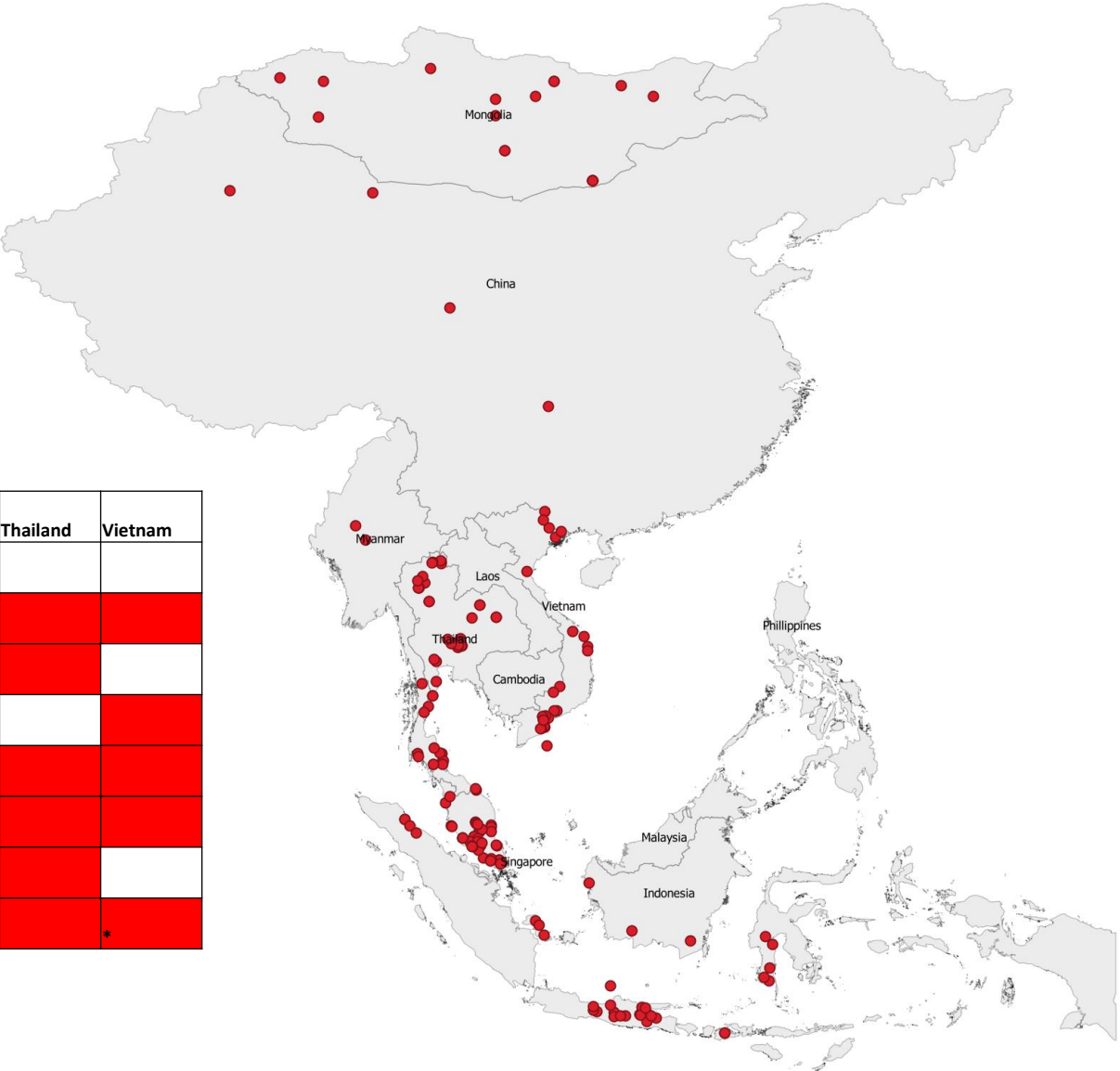
sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52609	MAY/0070/2023(1)	cattle	100.0	0	O	ME-SA	PanAsia	
viba_37707	LAO/1/2018	cattle	96.8	0	O	ME-SA	PanAsia	
viba_37668	TAI/12/2017	cattle	96.7	0	O	ME-SA	PanAsia	
viba_40576	VIT/3/2018	cattle	96.5	0	O	ME-SA	PanAsia	
viba_36493	VIT/32/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_37680	TAI/16/2017	cattle	96.4	0	O	ME-SA	PanAsia	
viba_36497	VIT/1/2018	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36481	VIT/29/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36461	VIT/18/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_35454	BaTri/VIT/17-19372	cattle	96.4	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.0	0	O	ME-SA	PanAsia	
viba_705	KUW/3/97	bovine	90.9	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.7	0	O	ME-SA	Ind-2001	b
viba_9021	LAO/2/2006	cattle	90.5	0	O	ME-SA	PanAsia	
viba_27877	SRL/2/97	bovine	90.4	0	O	ME-SA	Srl-97	
viba_293	BHU/3/2009	cattle	89.9	0	O	ME-SA	Ind-2001	d
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		89.1	0	O	ME-SA		
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15

O/ME-SA/Ind2001e



Year	Cambodia	China	Indonesia	Lao PDR	Malaysia	Mongolia	Myanmar	Thailand	Vietnam
2016									
2017		*					*		
2018		*							
2019		*							
2020		*					*		
2021		*					*		
2022									
2023		*							*

Serotype A/ASIA/Sea-97



Report on FMDV A in Thailand in 2021

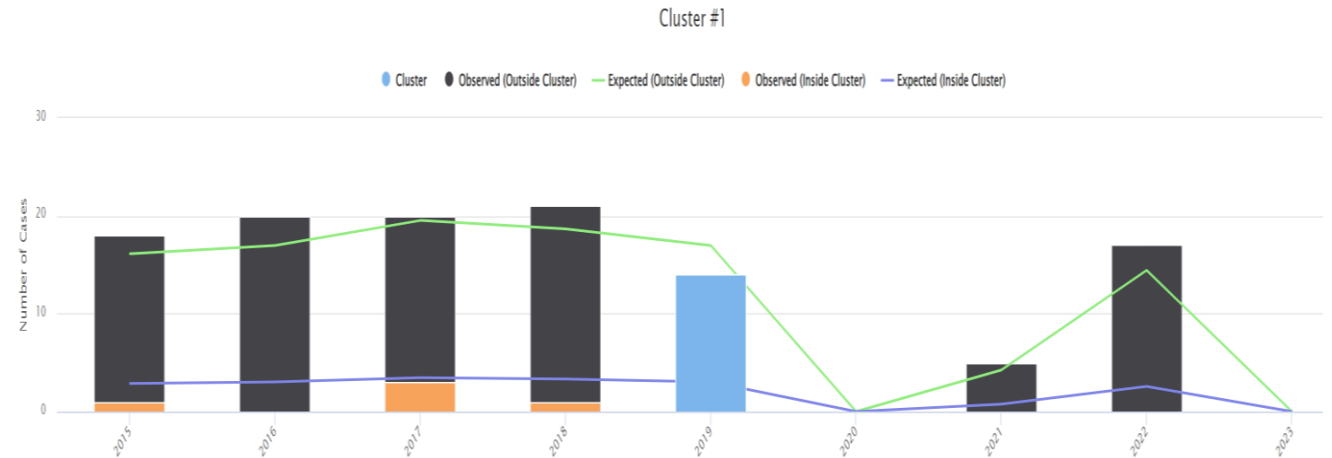
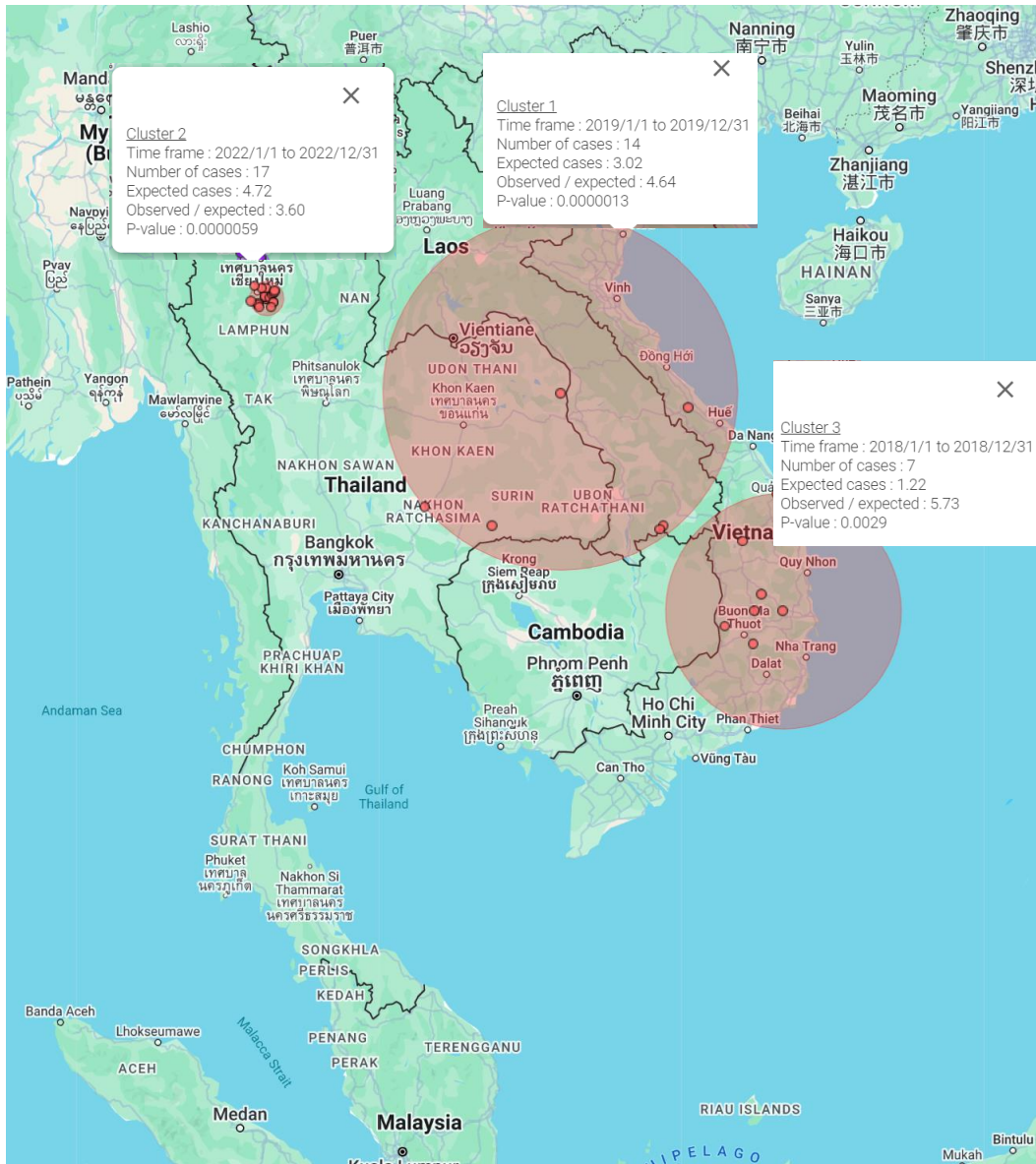
Batch: WRLMEG/2022/00014



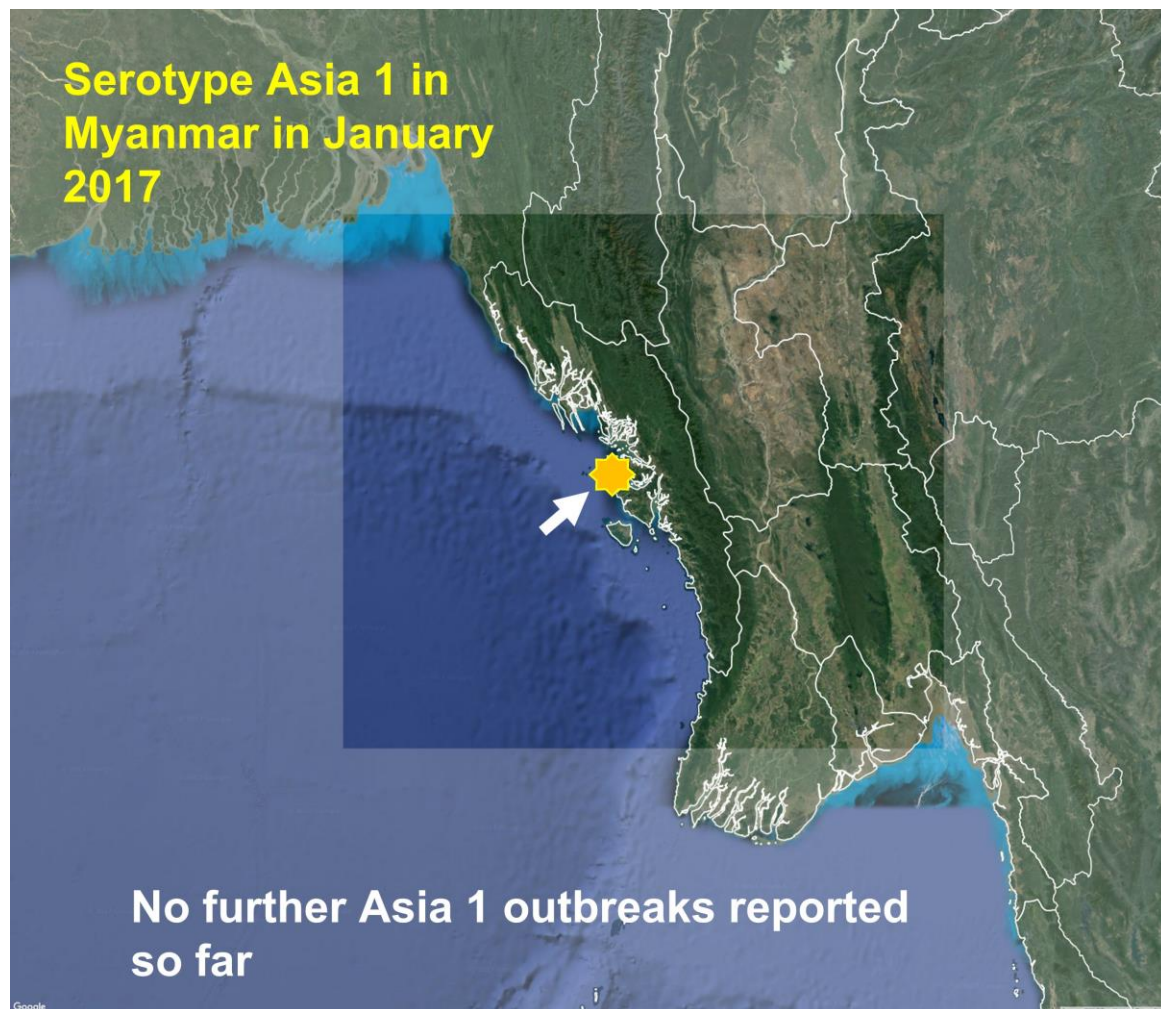
Year	Cambodia	China	Laos	Malaysia	Mongolia	Myanmar	Thailand	Vietnam
2015								
2016								
2017*								
2018		*						
2019*								
2020								
2021						*		
2022								
2023								



Serotype A/ASIA/Sea-97 (2019-2023)



Serotype Asia 1



Received: 4 May 2018 | Revised: 22 November 2018 | Accepted: 12 December 2018

DOI: 10.1111/tbed.13112

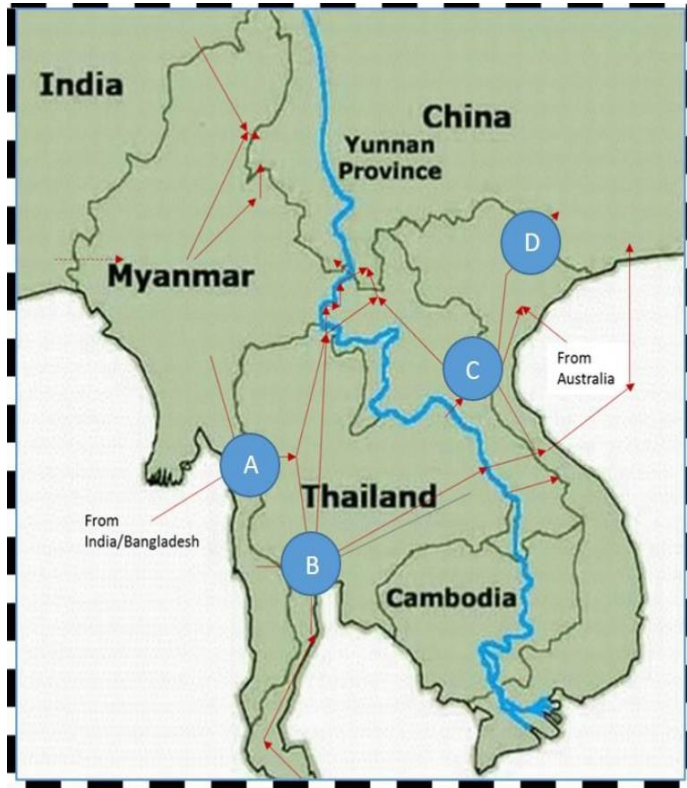
SHORT COMMUNICATION

WILEY 

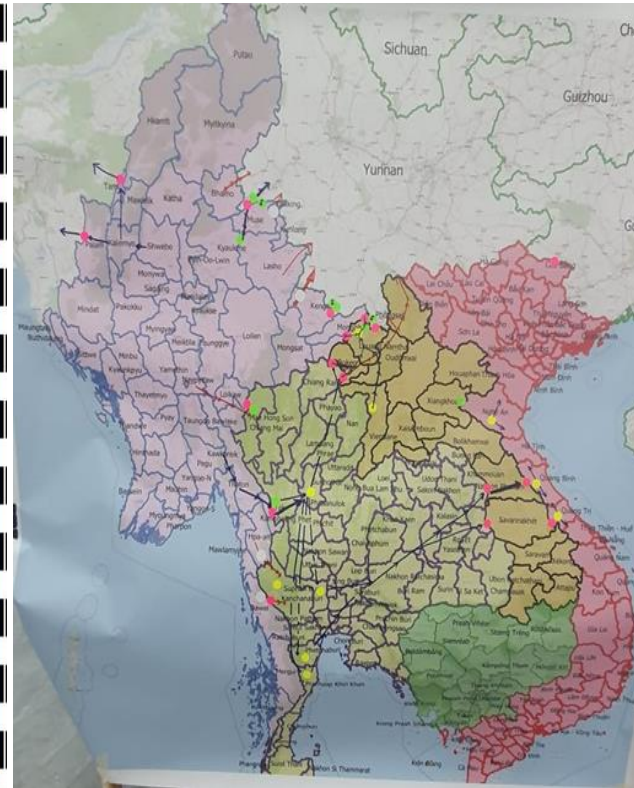
Foot-and-mouth disease outbreaks due to an exotic serotype Asia 1 virus in Myanmar in 2017

Lin Lin Bo^{1,*} | Khin Sander Lwin^{2,*} | Sahawatchara Ungvanijban³ | Nick J. Knowles⁴ |
Jemma Wadsworth⁴ | Donald P. King⁴ | Ronello Abila⁵ | Yu Qiu⁵ 

Animal movement pattern



Animal Movement study, 2015



Exercise mapping in 2024,
UMWG

Myanmar identified two more critical northern pathways where animals are crossing borders

A movement pathway from Myanmar to India was identified

Trade from Myanmar to Thailand has increased

Trading from Thailand to Vietnam has reduced.

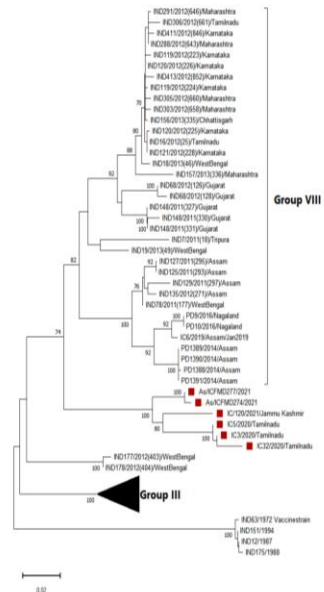
Trade between Vietnam and Cambodia is intensified

- Indonesia, Malaysia – demand of goat importation is increased

Risk of incursion

Asia 1 still circulates in South Asia

Asia 1 report in India (FAO/WOAH FMD LabNetwork meeting, 2022)

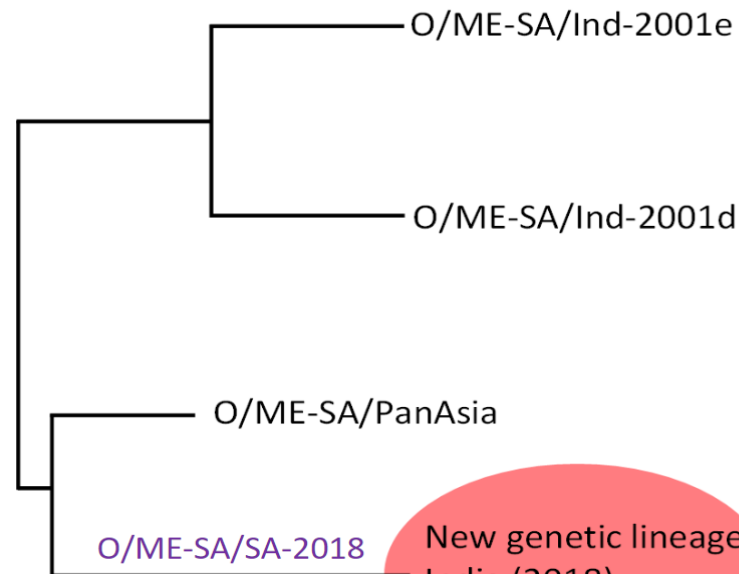


Serotype Asia1 (2021-2022)

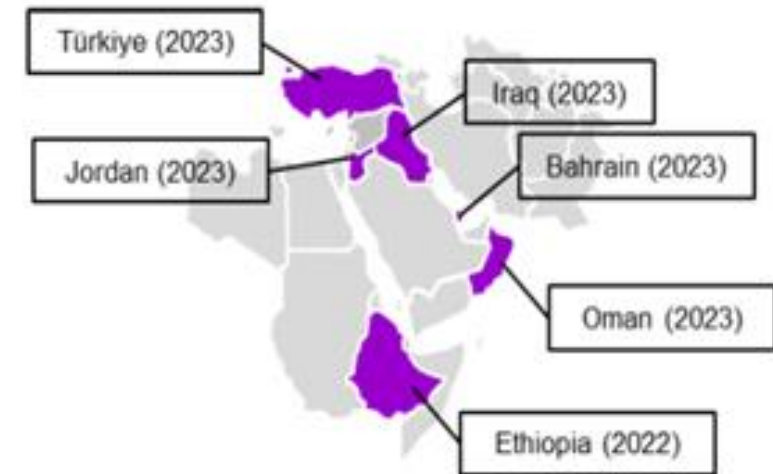
✓ Three FMDV serotype As isolate collected during 2021 from the state of Jammu Kashmir clustered with Group-IX (BD-18) which emergence has been described recently in January 2018 in Bangladesh and Tamilnadu during the month of January 2020

✓ The analysis indicates extended dominance of Group-IX in India.

New genetic lineage is detected



SAT2/XVI



New lineage is detected ?

www.pirbright.ac.uk

Observed Conclusion /Discussion

OBSERVED

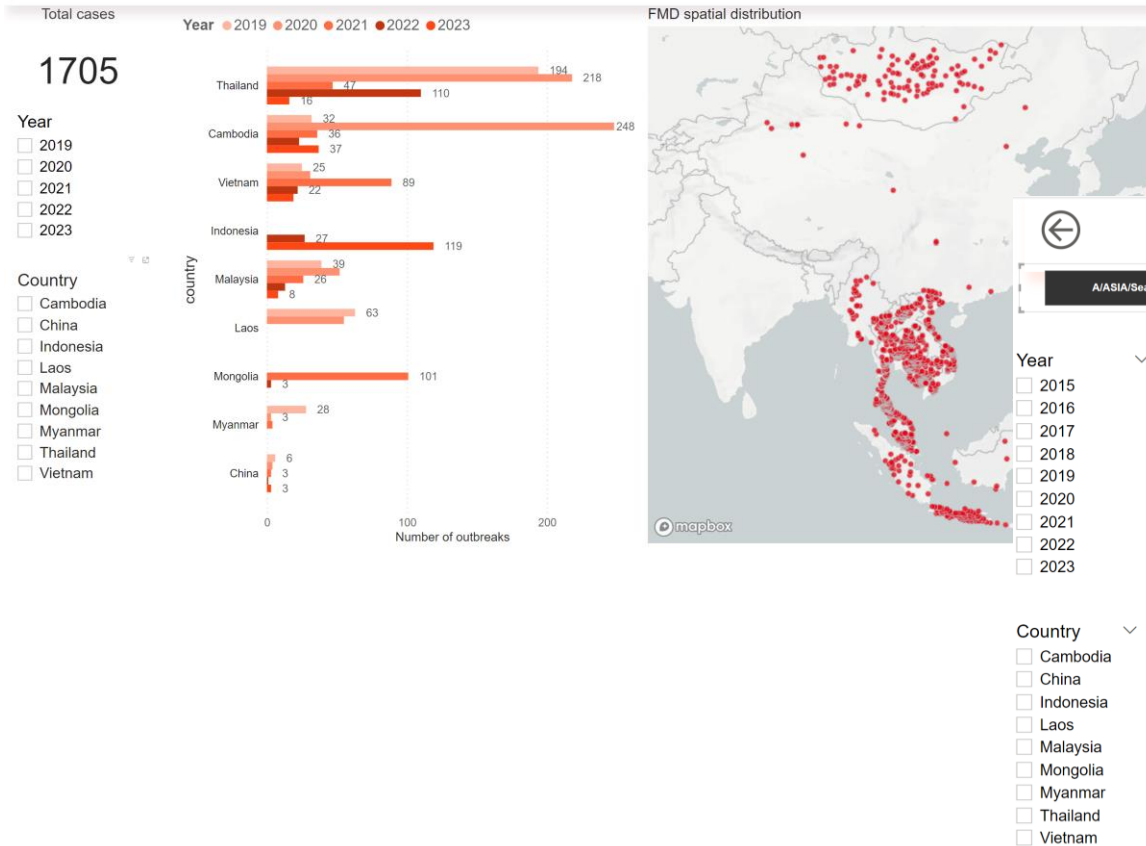
- The number of outbreaks reported is similar to the past two years.
- Seasonal patterns of FMD were observed in the **first quarter** of the year.
- **Thailand** and **Mongolia** reported a **significant decrease in detected cases**.
- **Serotype Asia 1** has not been detected in the region since **2017**.
- The predominant circulating serotype is **O/ME-SA/Ind2001e**.
- **O/ME-SA/PanAsia** was last reported in **Malaysia** in **2020**.
- **Serotype A** was detected in **Malaysia** in **2023**, though it typically clusters in **Thailand**; it has **not been detected in 2024**.
- **Lao PDR** has reported **no FMD cases since 2020**

DISCUSSION

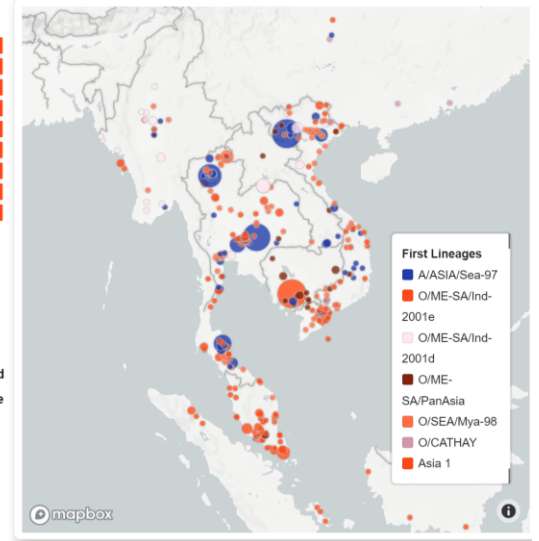
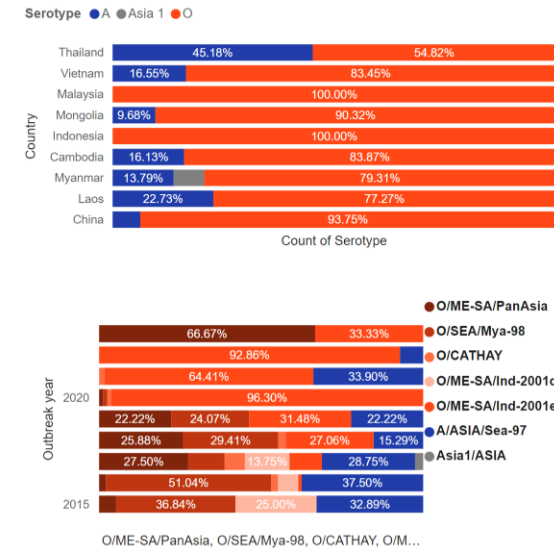
- Underreporting remains a significant challenge
- The sensitivity of the passive surveillance system in the region is still questionable?
- Current surveillance accurately represents the full picture of FMD in the region ?
- Ongoing risk of new or emerging FMDV strains entering the region



FMD OUTBREAK



FMDV Serotype/Topotype



South-East Asia, China and Mongolia Foot and Mouth Disease (SEACFMD) Campaign WOAHA - Asia

Thank You