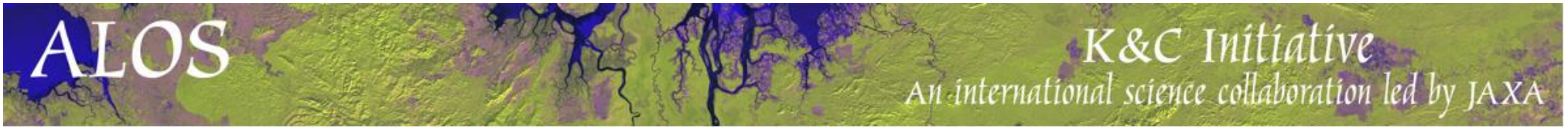


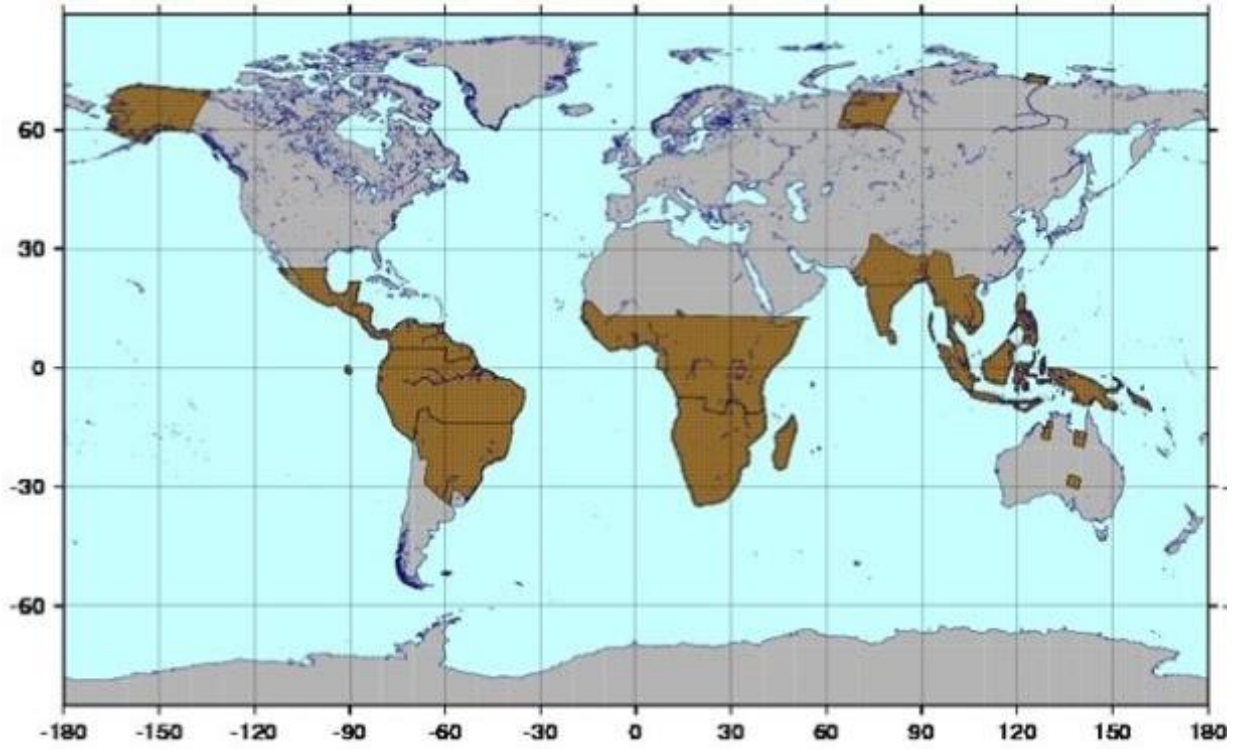
Inundation mapping by ScanSAR time-series

Ake Rosenqvist, Lisa Maria Rebelo, Thiago Silva, Bruce Forsberg, Kyle McDonald & students (CUNY)

Ramsar STRP-21
15-19 January 2018

JAXA systematic acquisition strategy for ALOS and ALOS-2

- Wetlands in the tropics/sub-tropics (+ some boreal)
- Time-series observation frequency 1.5 months (8-9 obs/year)
- 2007-2010 (100m)
- 2015-2018+ (50m)



ALOS

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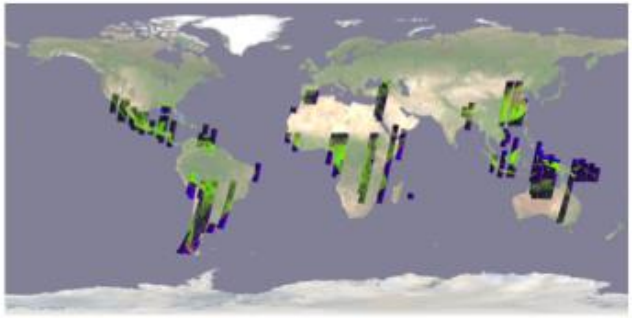
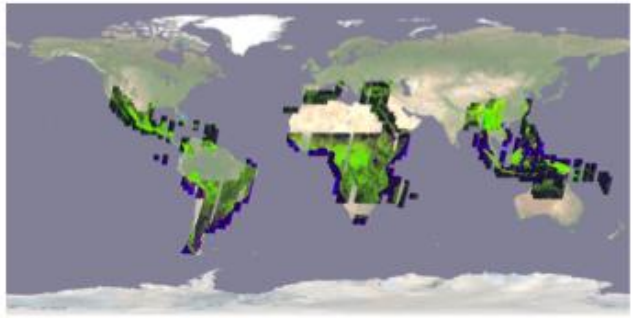
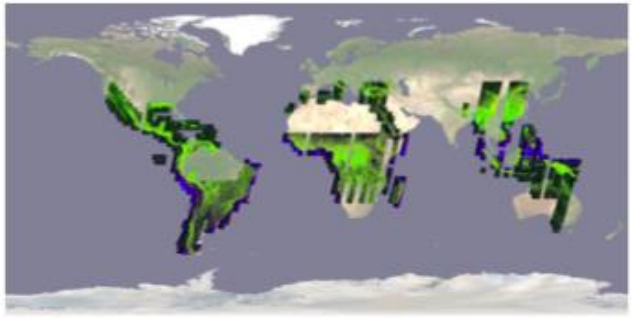
FY2014 Cycle_Mosaic



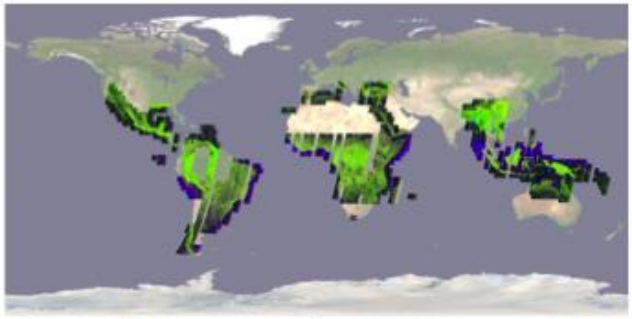
Cycle_002	4-Aug-14 - 17-Aug-14



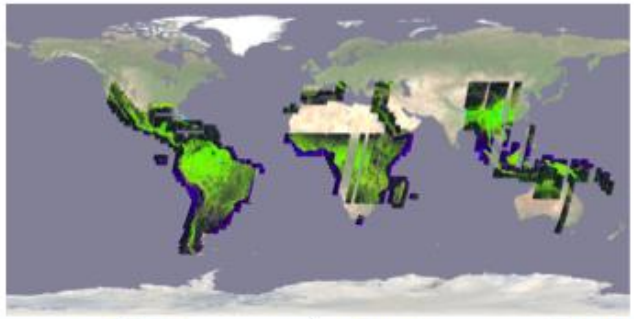
Cycle_004	1-Sep-14 - 14-Sep-14



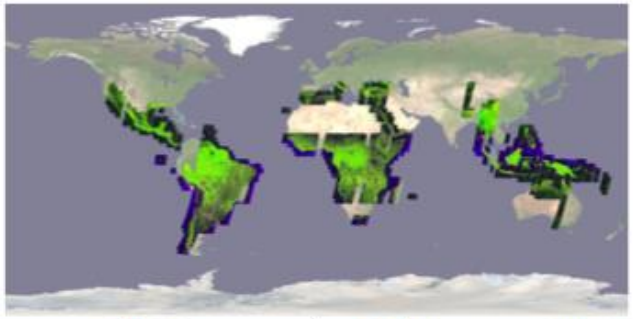
Cycle_007	13-Oct-14 - 26-Oct-14



Cycle_010	24-Nov-14 - 7-Dec-14



Cycle_013	5-Jan-15 - 18-Jan-15



Cycle_016	16-Feb-15 - 1-Mar-15

ALOS

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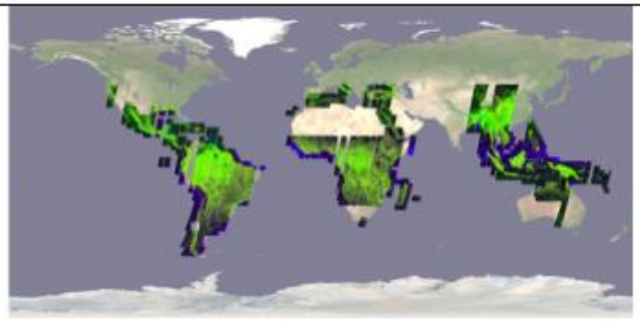
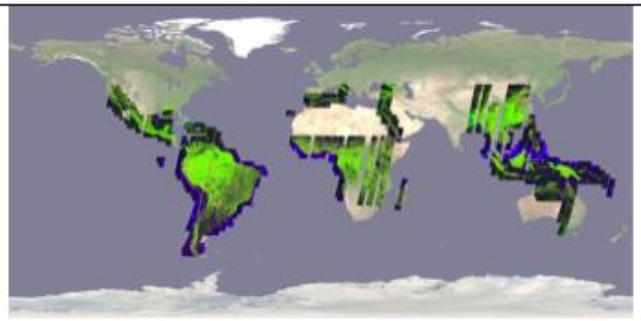
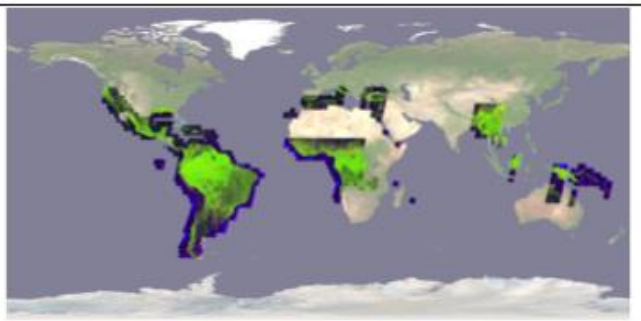
FY2015 Cycle_Mosaic



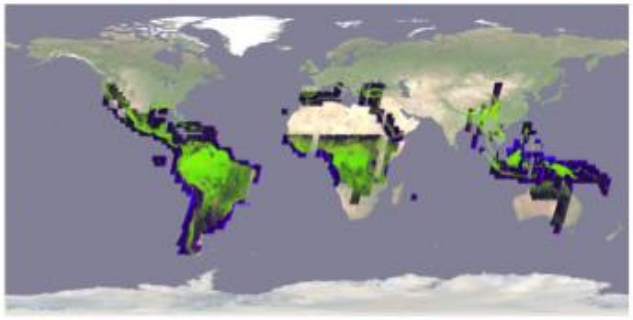
Cycle_019	30-Mar-15 - 12-Apr-15



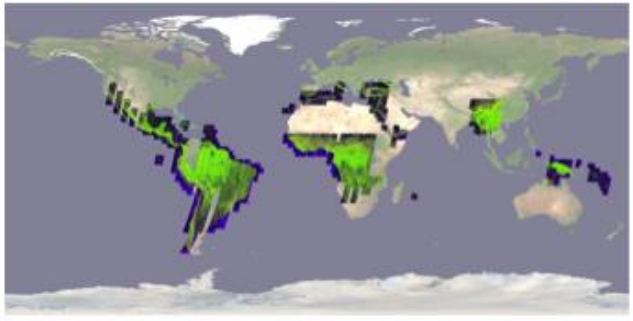
Cycle_022	11-May-15 - 24-May-15



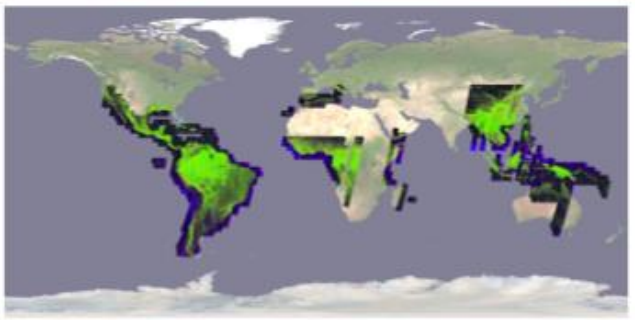
Cycle_024	8-Jun-15 - 21-Jun-15



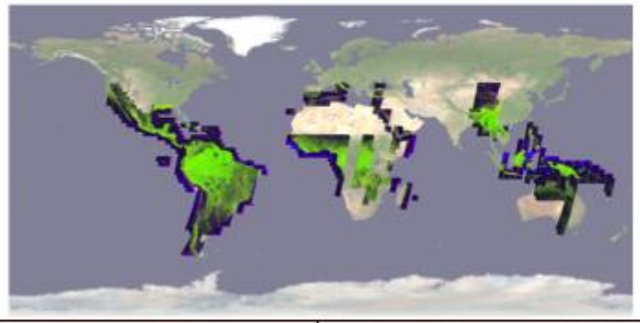
Cycle_027	20-Jul-15 - 2-Aug-15



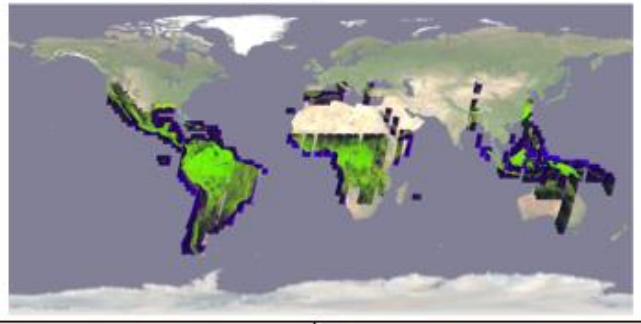
Cycle_030	31-Aug-15 - 13-Sep-15



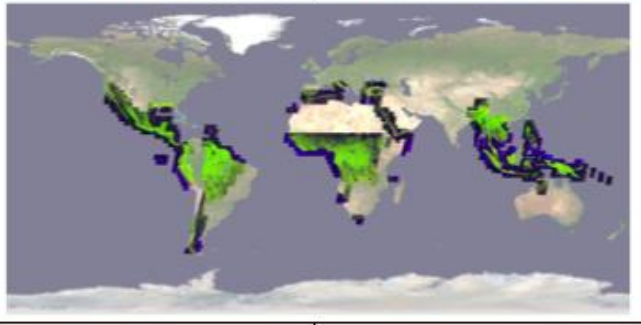
Cycle_033	12-Oct-15 - 25-Oct-15



Cycle_036	23-Nov-15 - 6-Dec-15



Cycle_039	4-Jan-16 - 17-Jan-16



Cycle_042	15-Feb-16 - 28-Feb-16

ALOS

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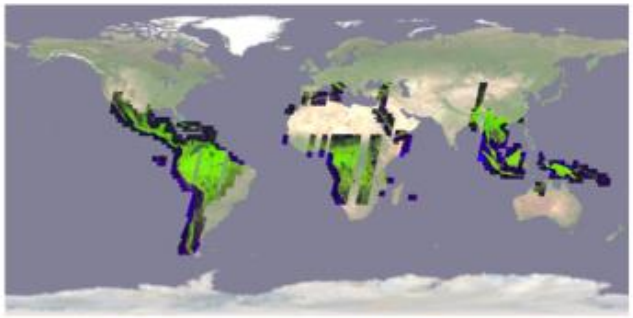
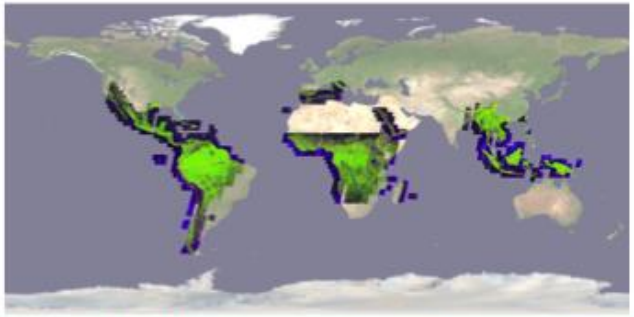
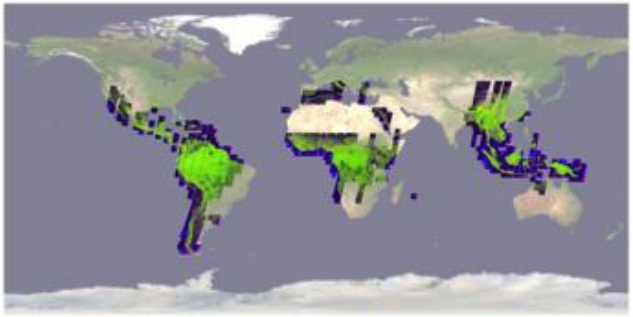
FY2016 Cycle_Mosaic



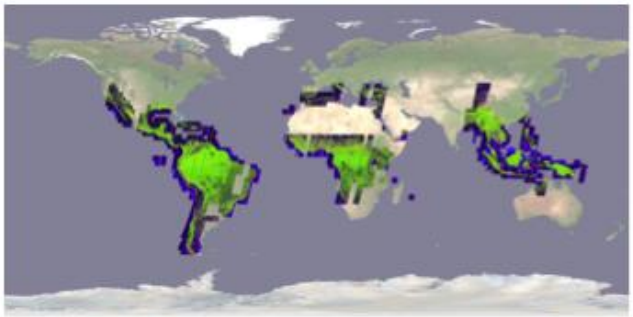
Cycle_045	28-Mar-16 - 10-Apr-16



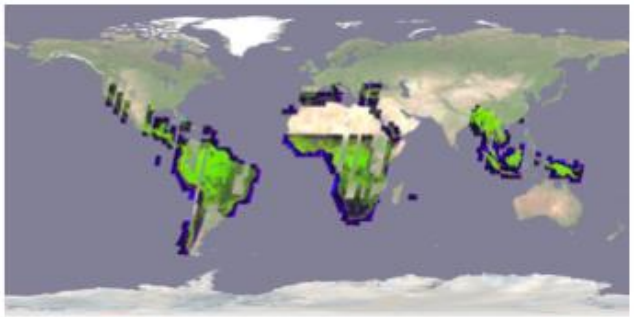
Cycle_048	9-May-16 - 22-May-16



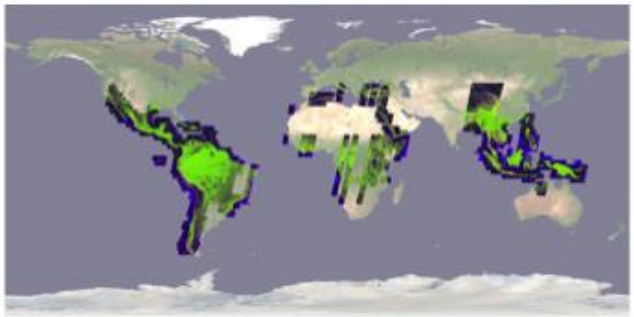
Cycle_050	6-Jun-16 - 19-Jun-16



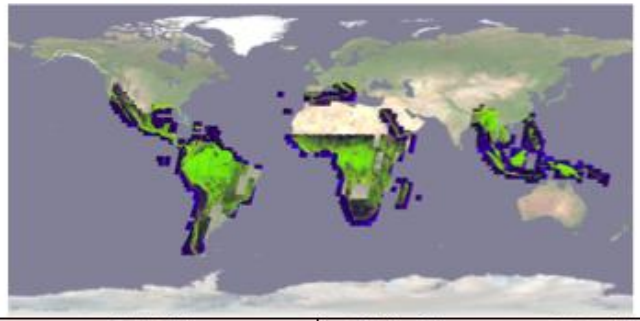
Cycle_053	18-Jul-16 - 31-Jul-16



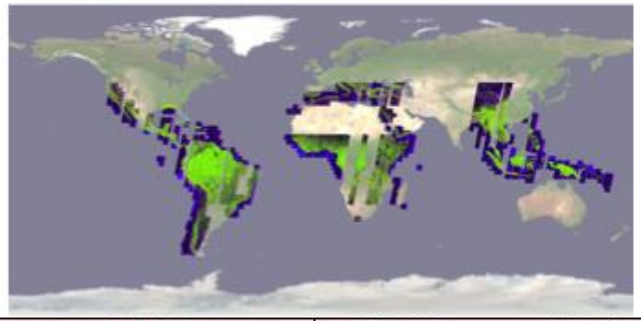
Cycle_056	29-Aug-16 - 11-Sep-16



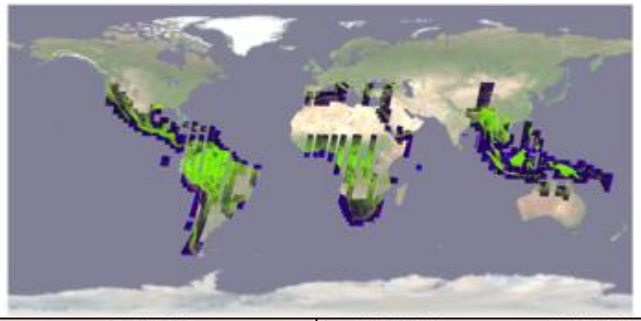
Cycle_059	10-Oct-16 - 23-Oct-16



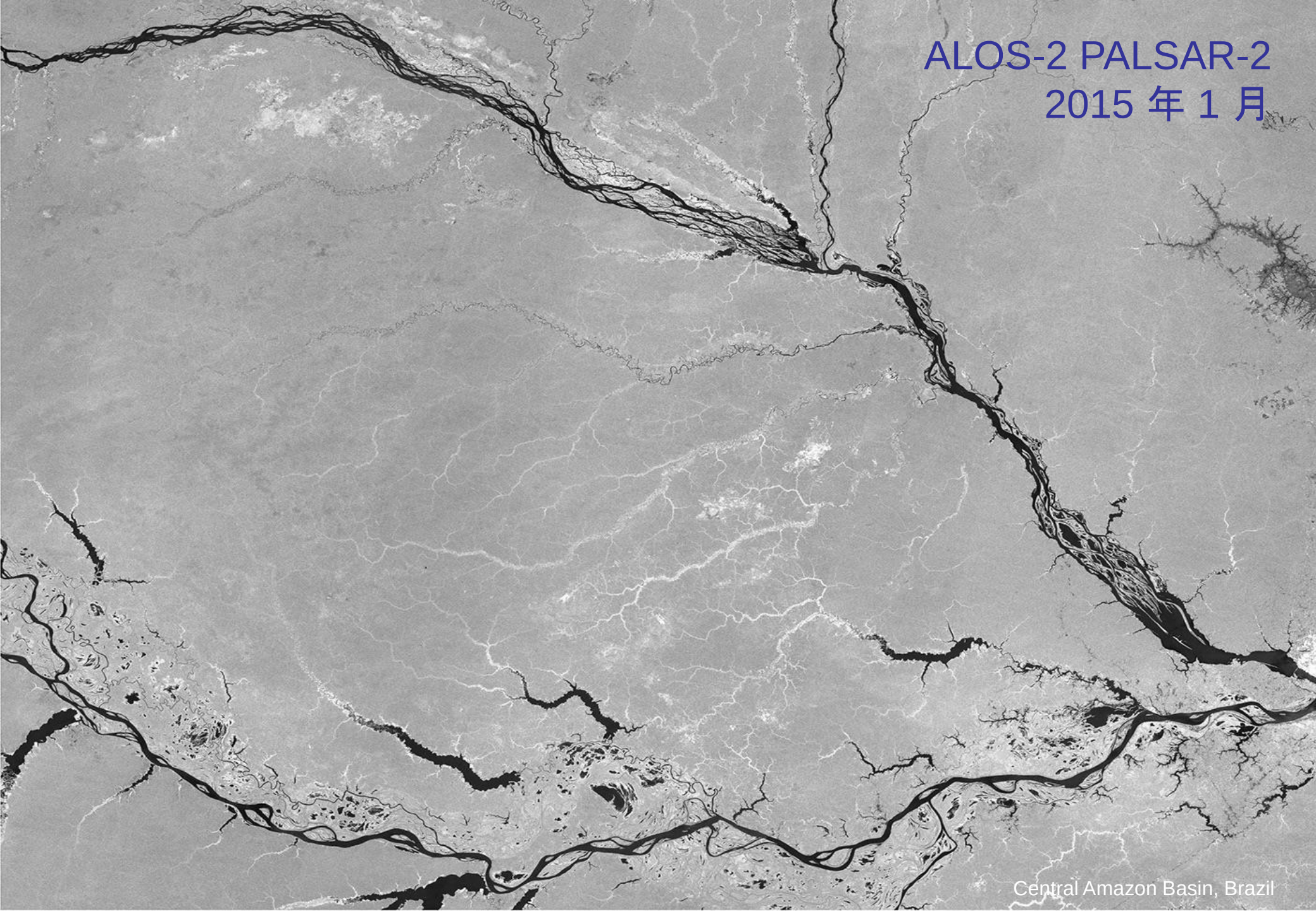
Cycle_062	21-Nov-16 - 4-Dec-16

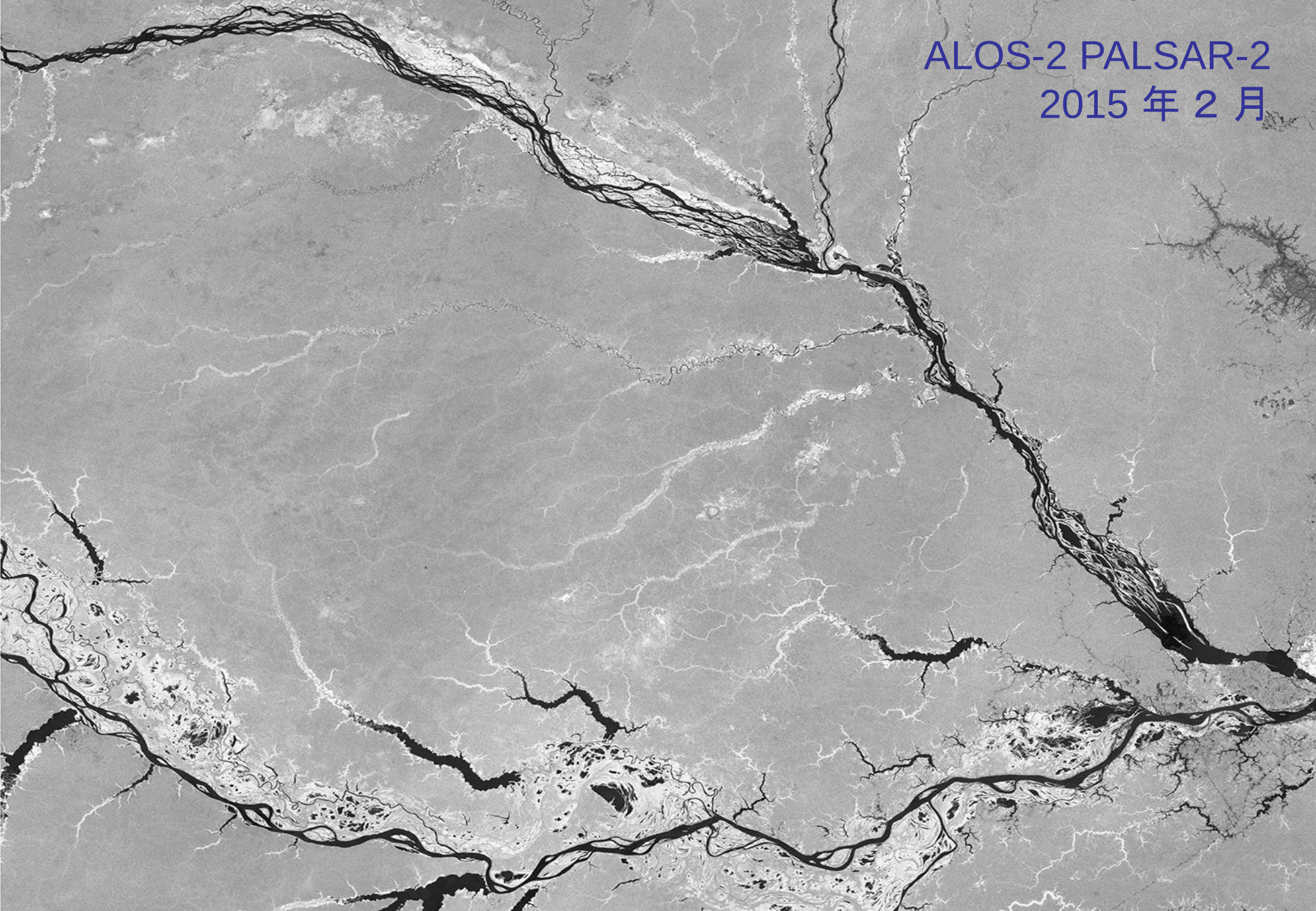


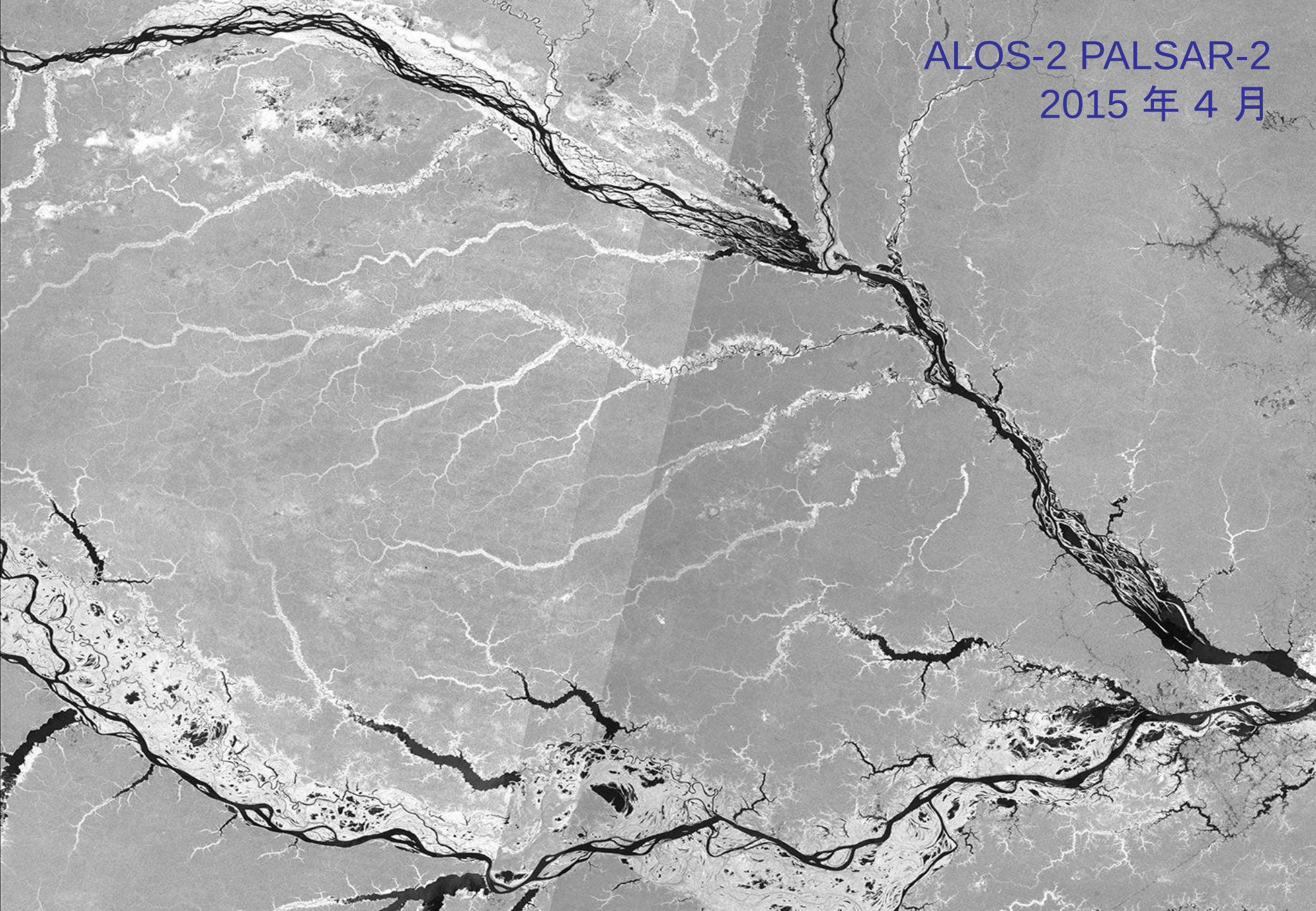
Cycle_065	2-Jan-17 - 15-Jan-17

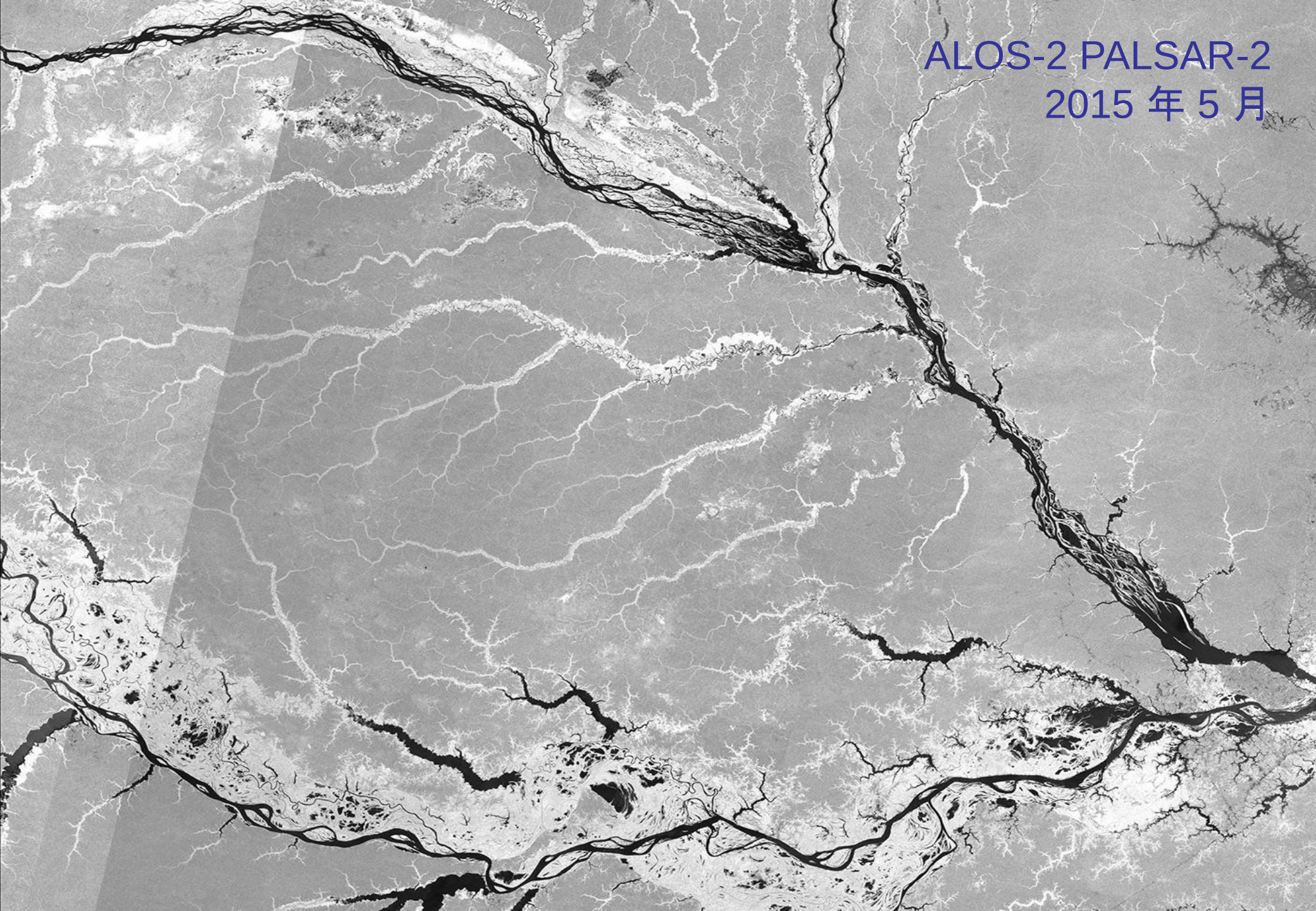


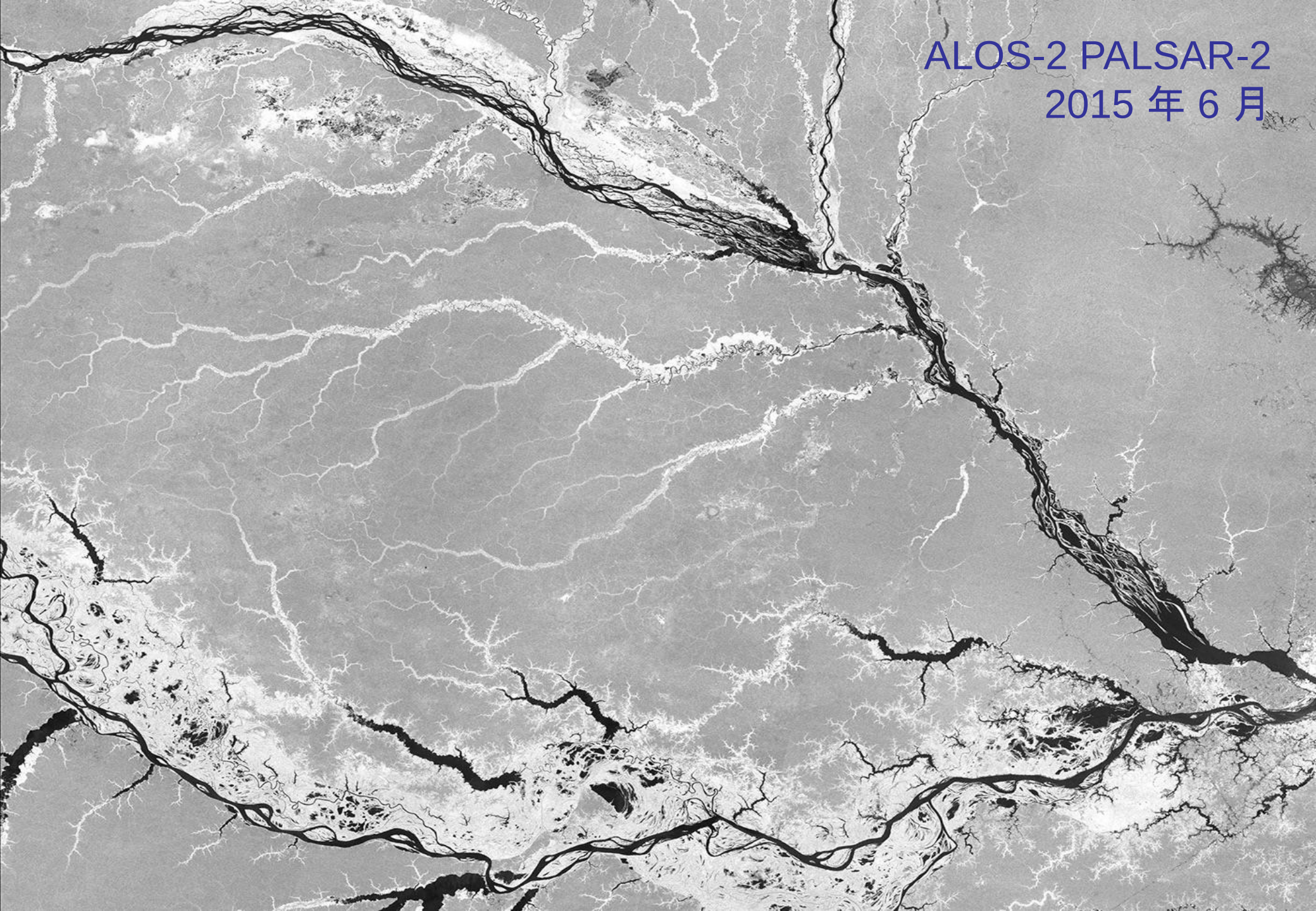
Cycle_068	13-Feb-17 - 26-Feb-17

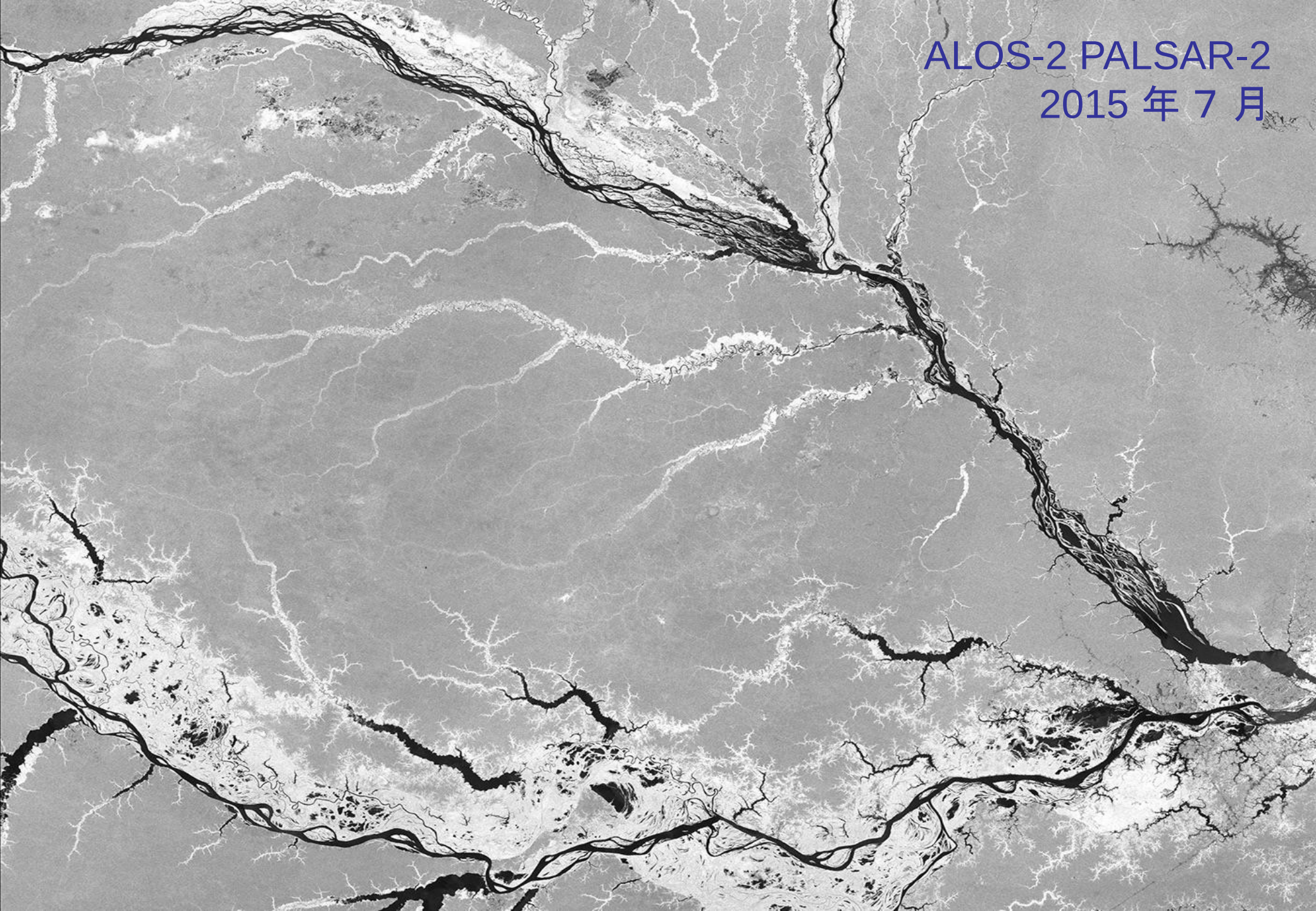

ALOS-2 PALSAR-2
2015 年 1 月
Central Amazon Basin, Brazil

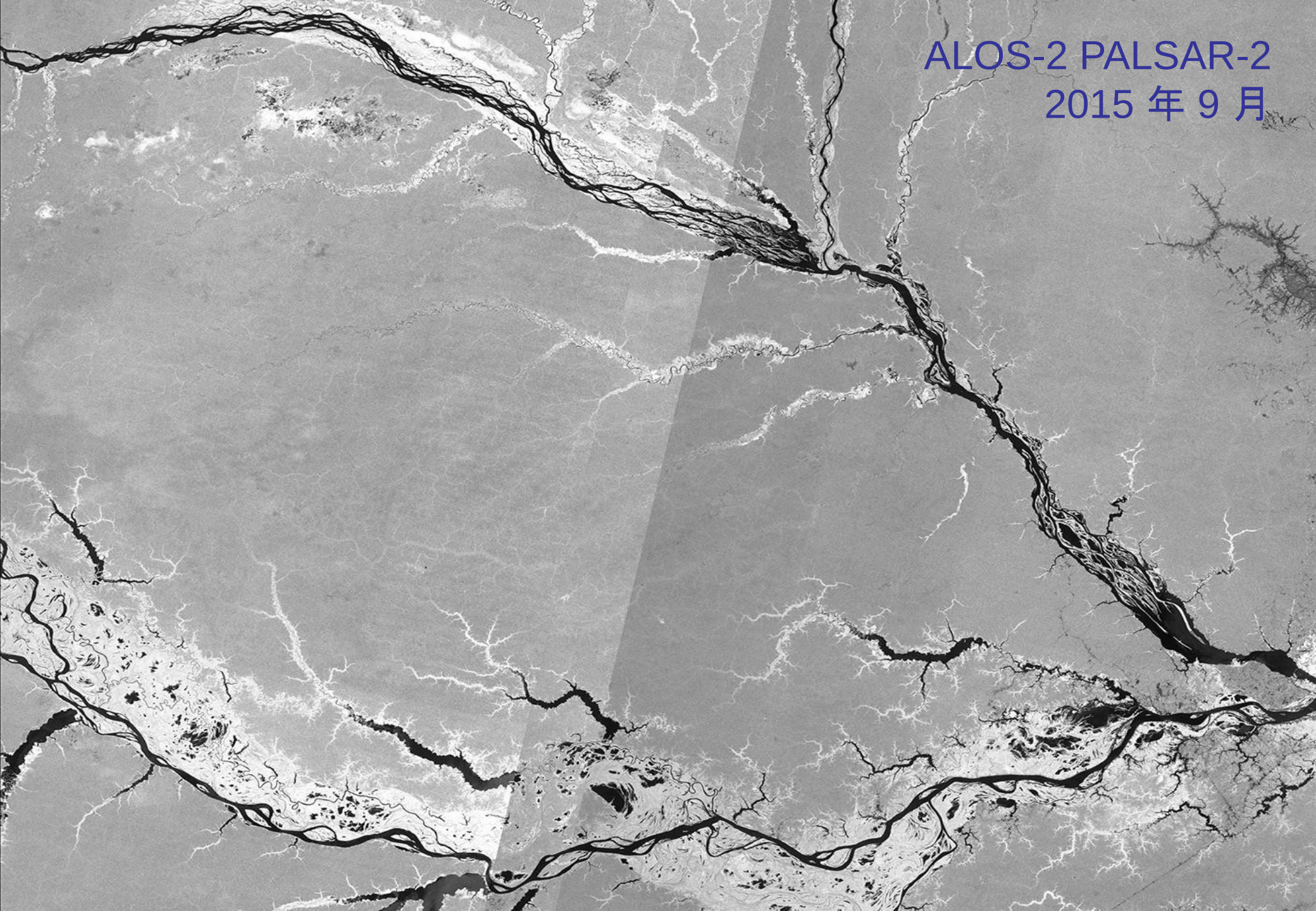

ALOS-2 PALSAR-2
2015 年 2 月

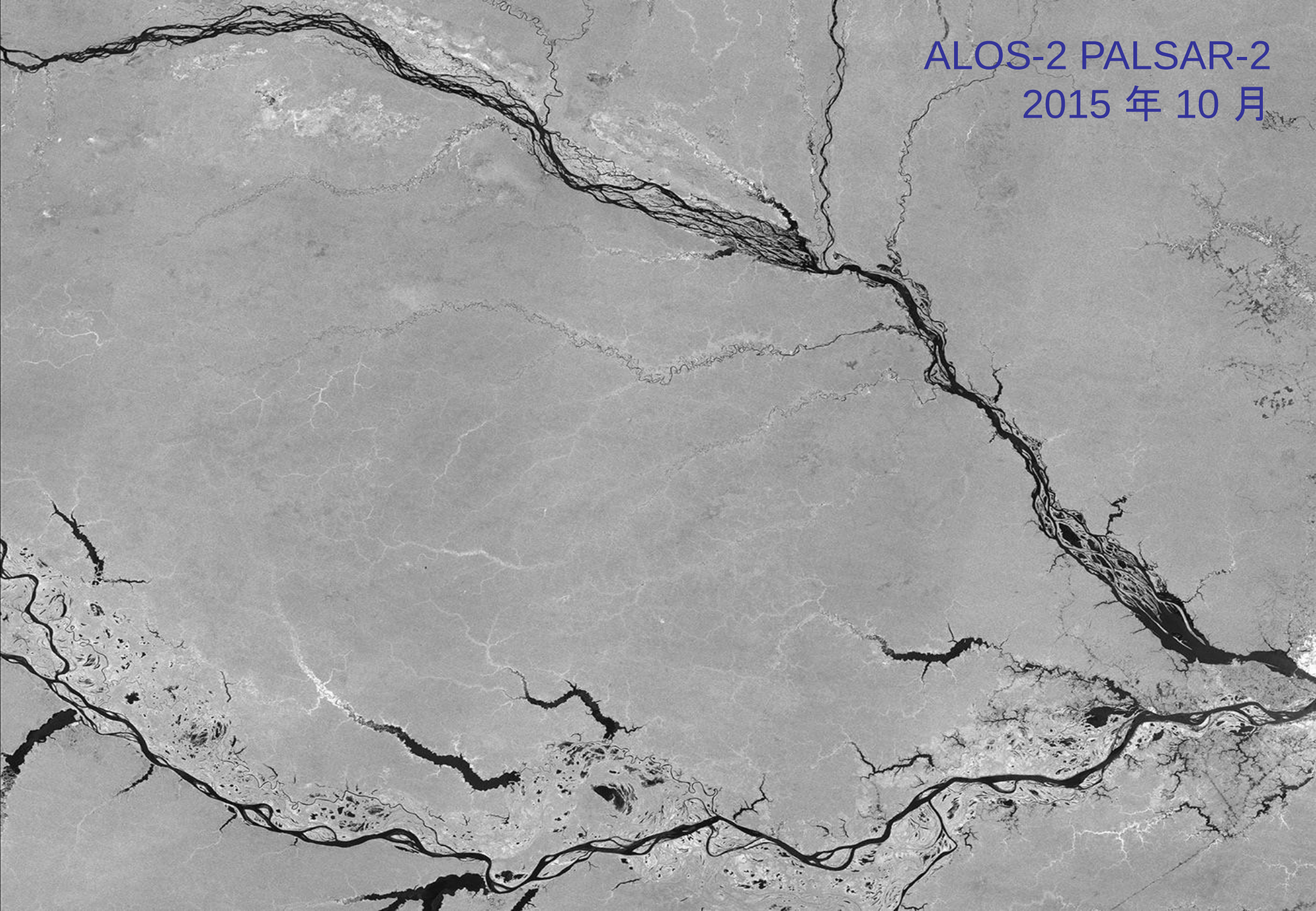

ALOS-2 PALSAR-2
2015 年 4 月

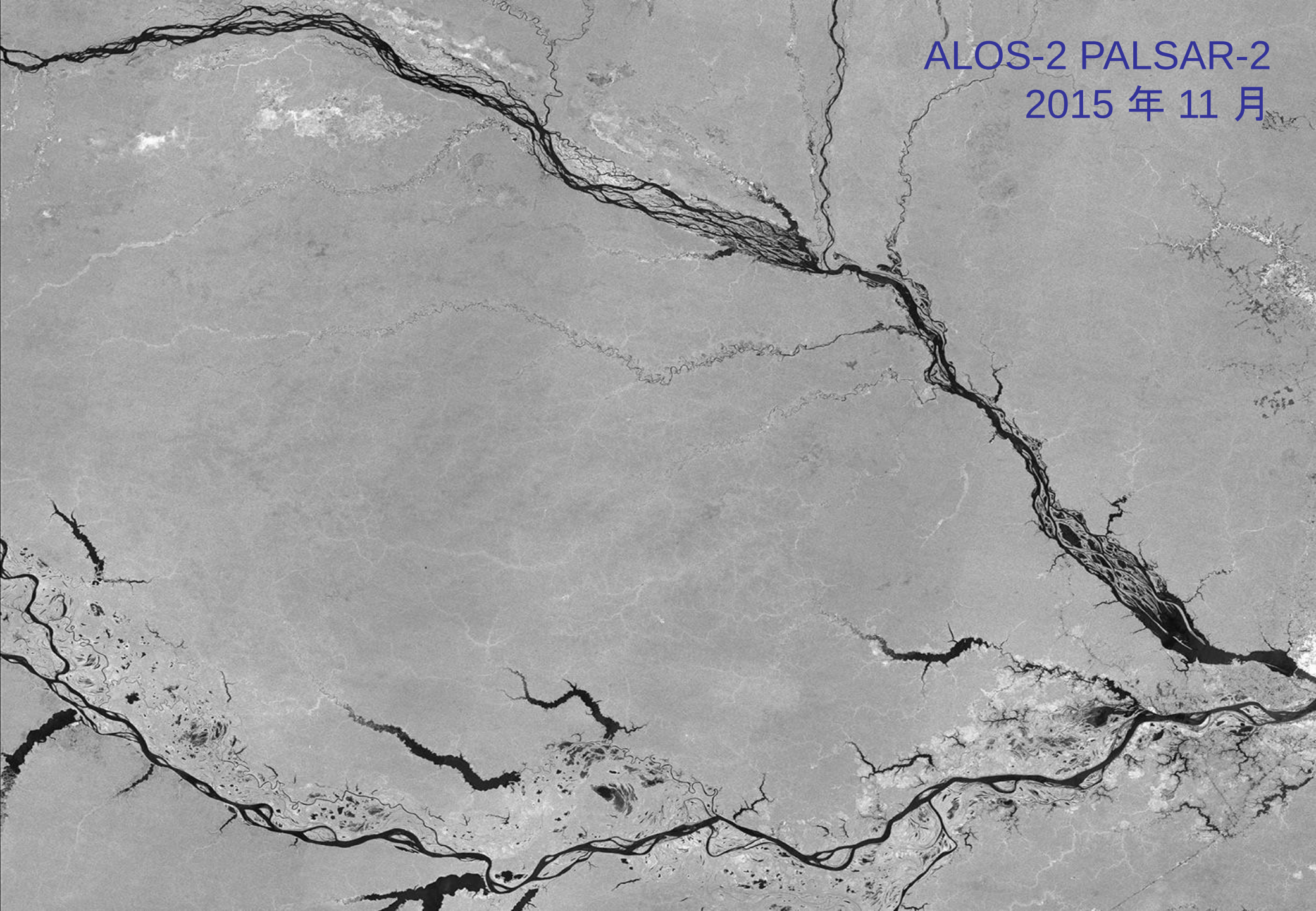

ALOS-2 PALSAR-2
2015 年 5 月

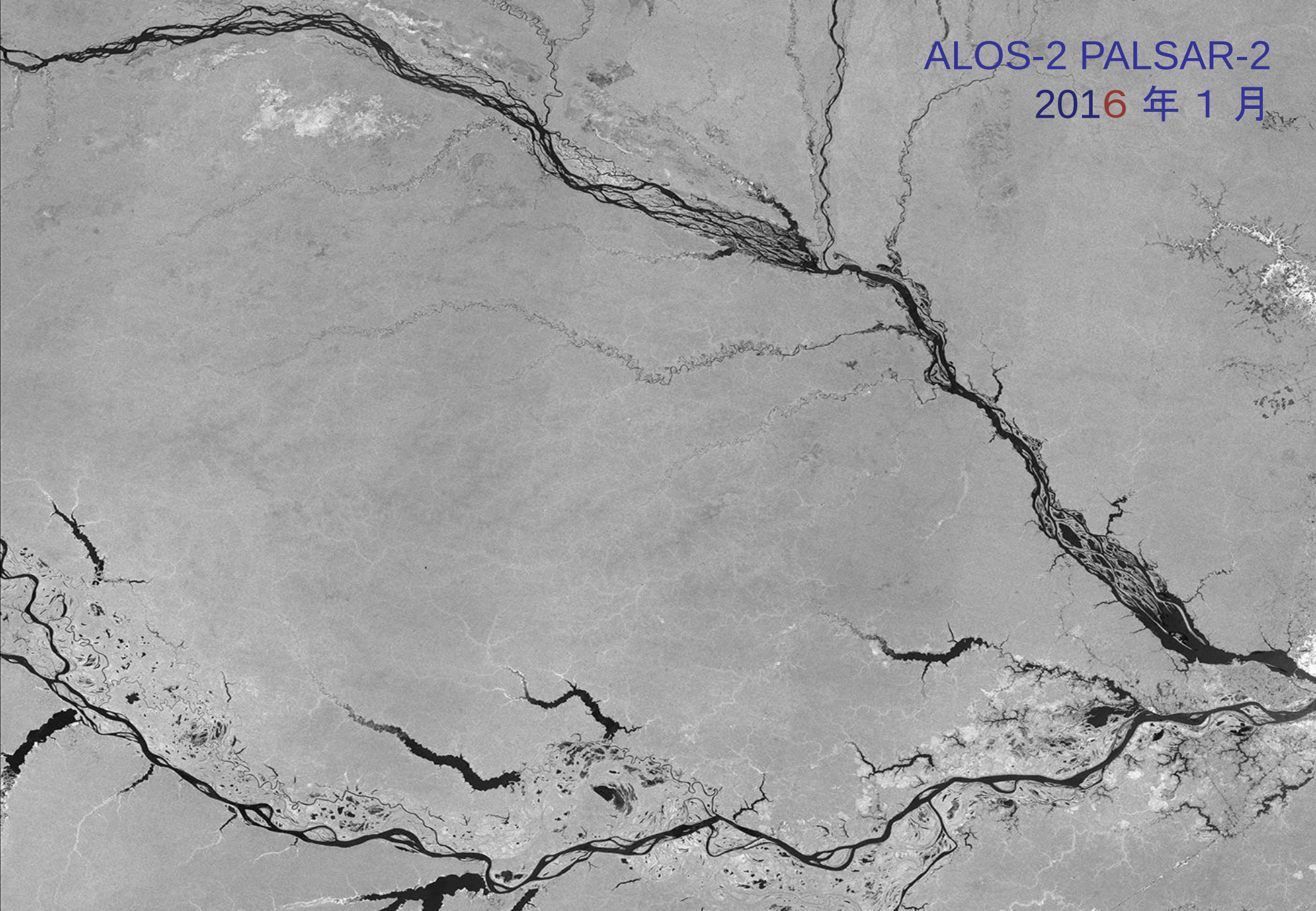

ALOS-2 PALSAR-2
2015 年 6 月

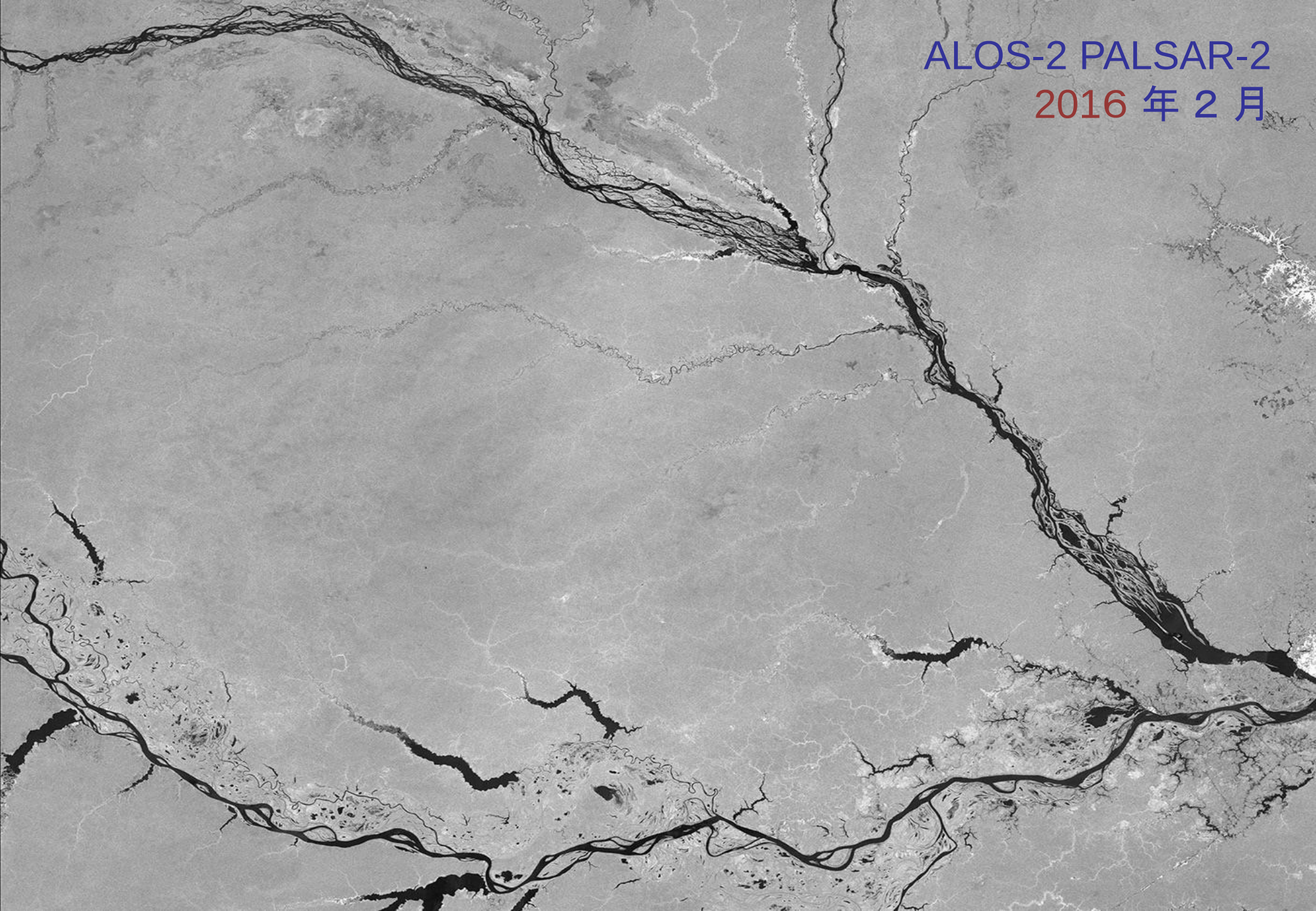

ALOS-2 PALSAR-2
2015 年 7 月

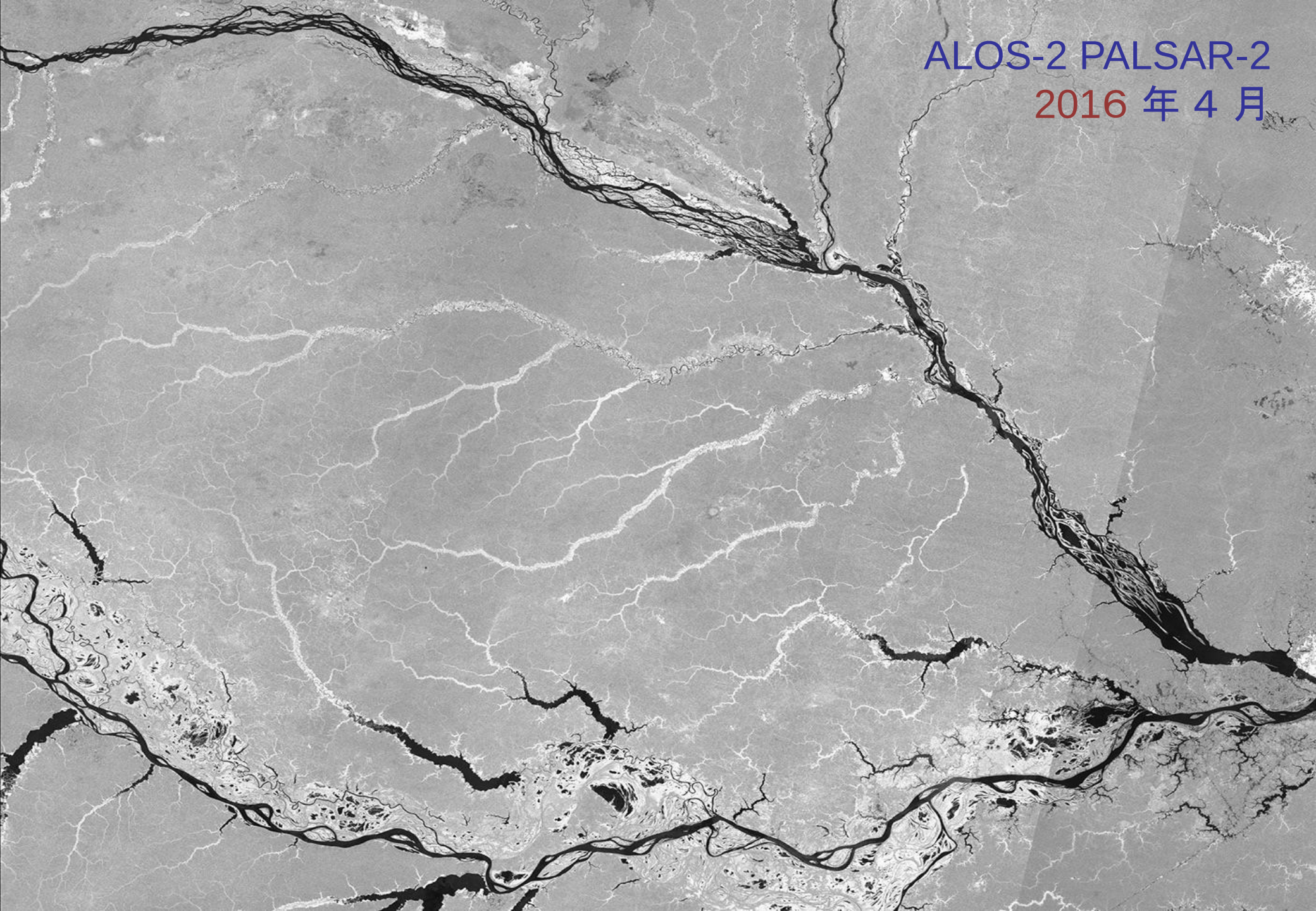

ALOS-2 PALSAR-2
2015 年 9 月

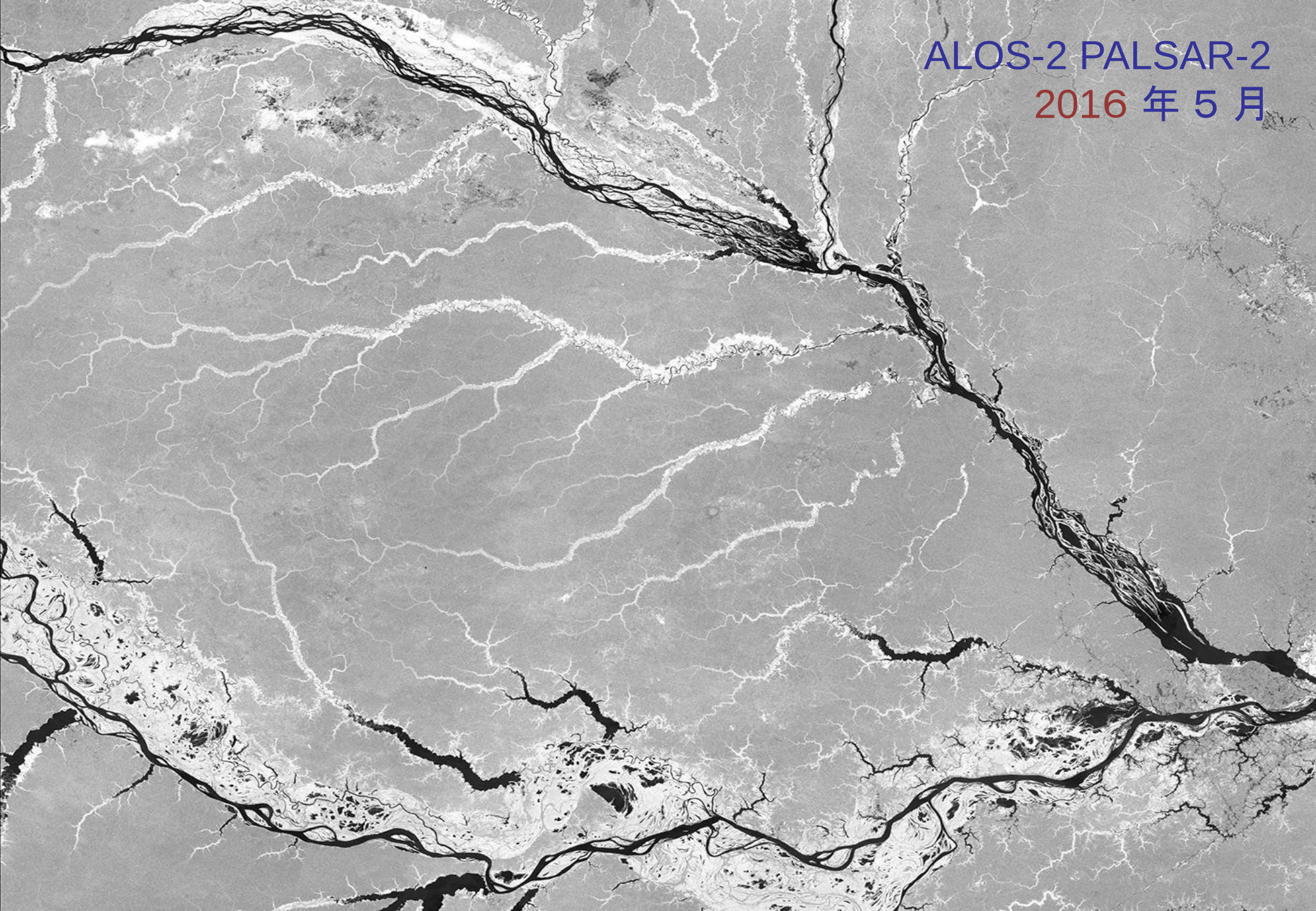

ALOS-2 PALSAR-2
2015 年 10 月

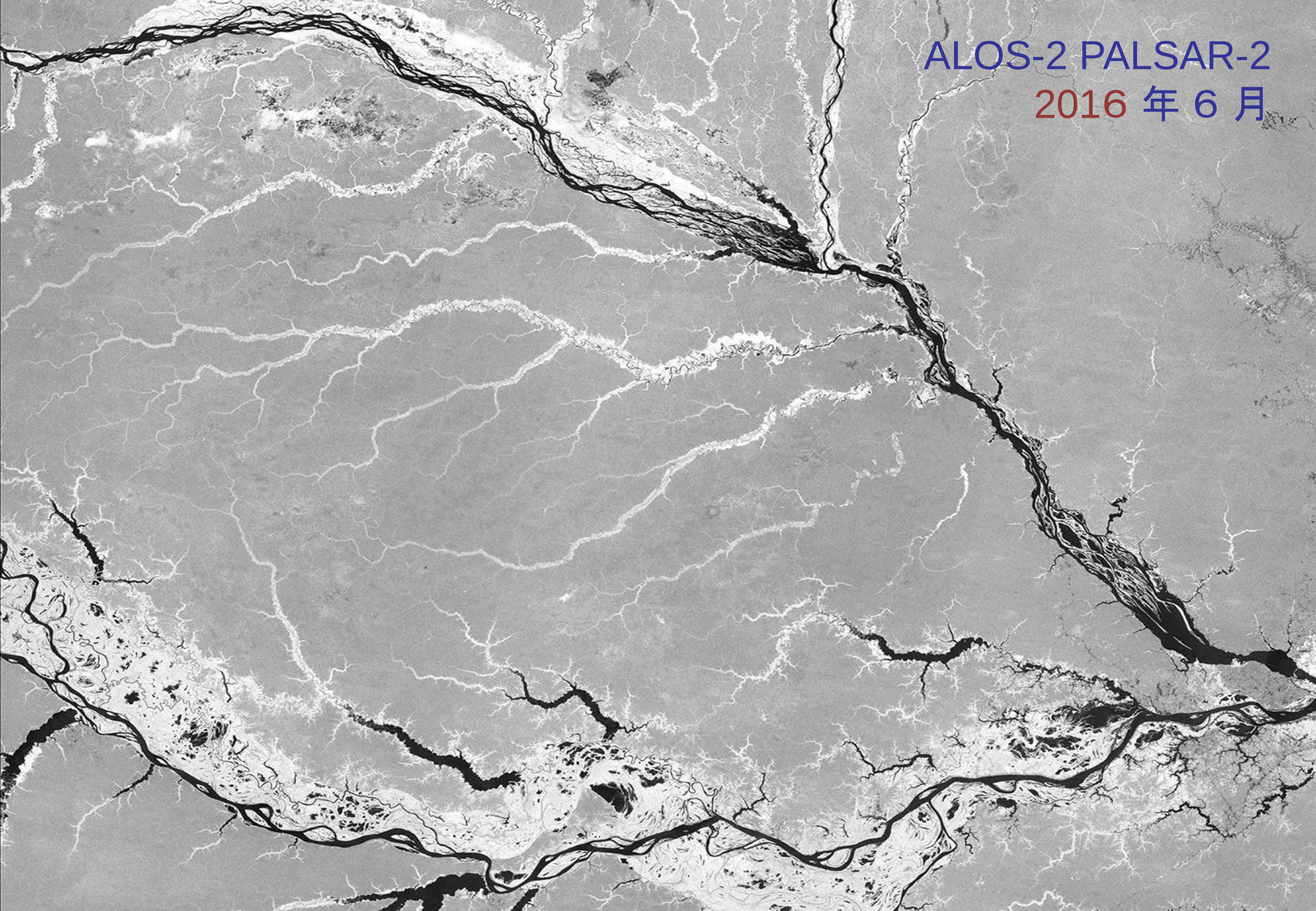

ALOS-2 PALSAR-2
2015 年 11 月

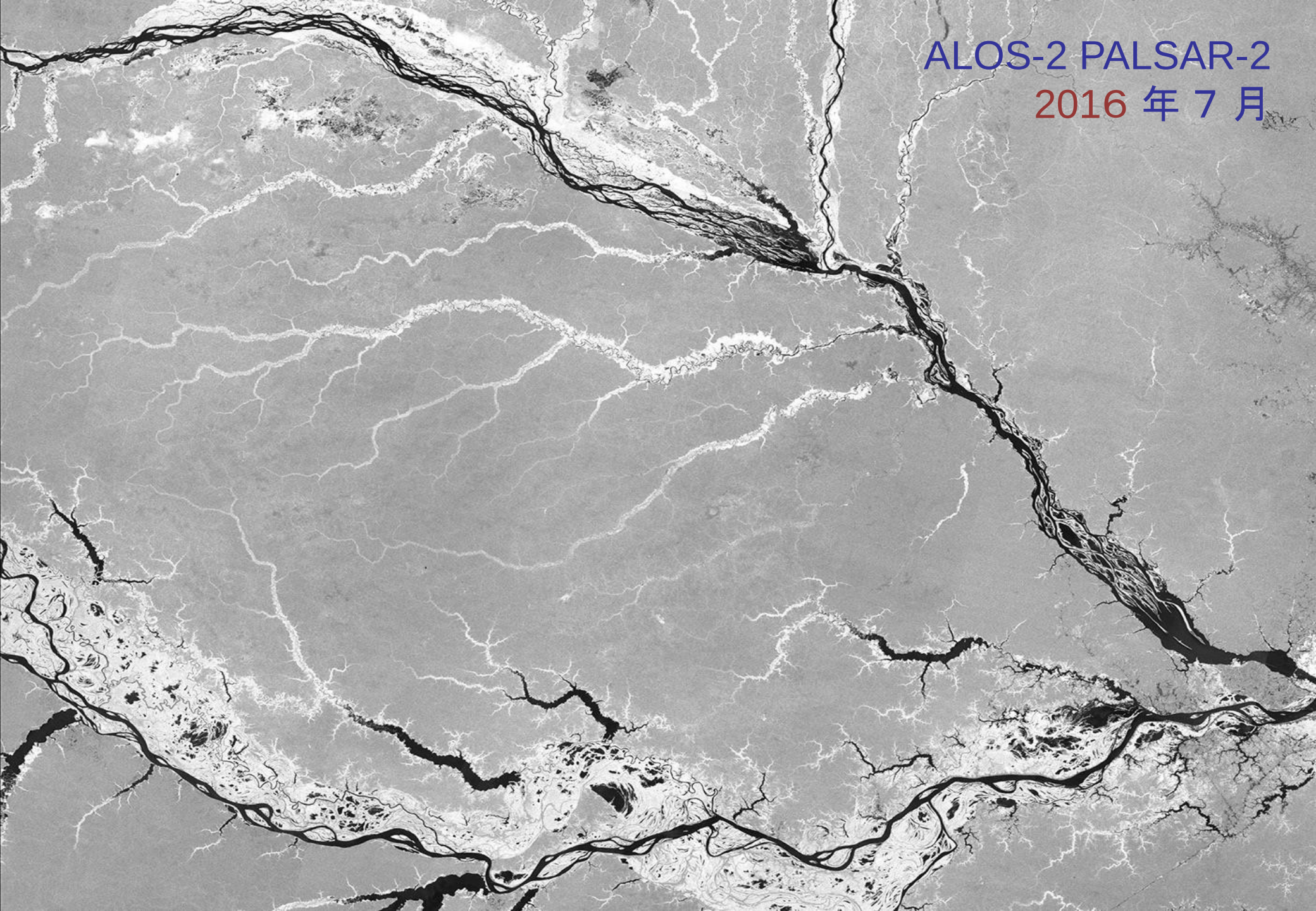

ALOS-2 PALSAR-2
2016 年 1 月

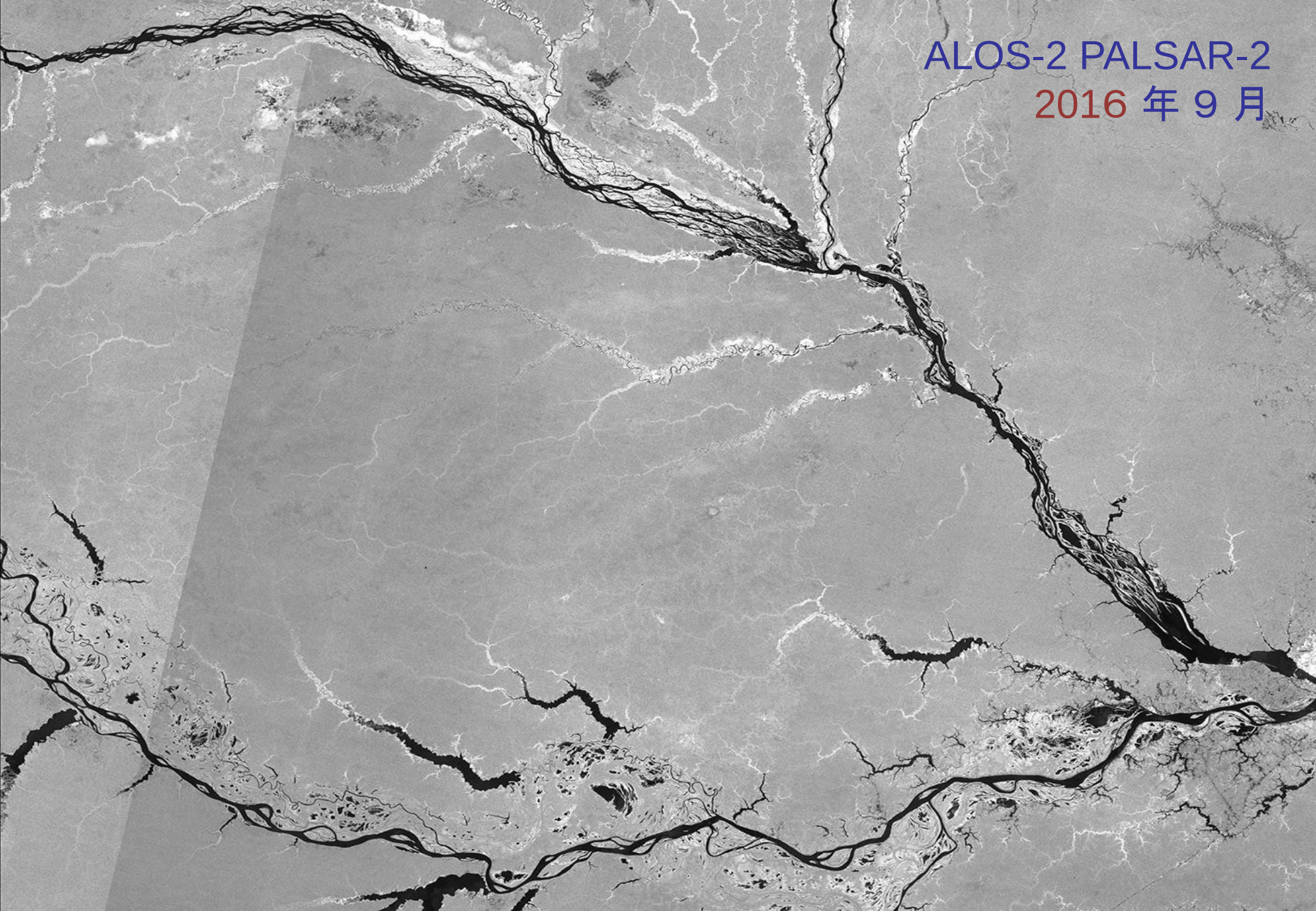

ALOS-2 PALSAR-2
2016 年 2 月

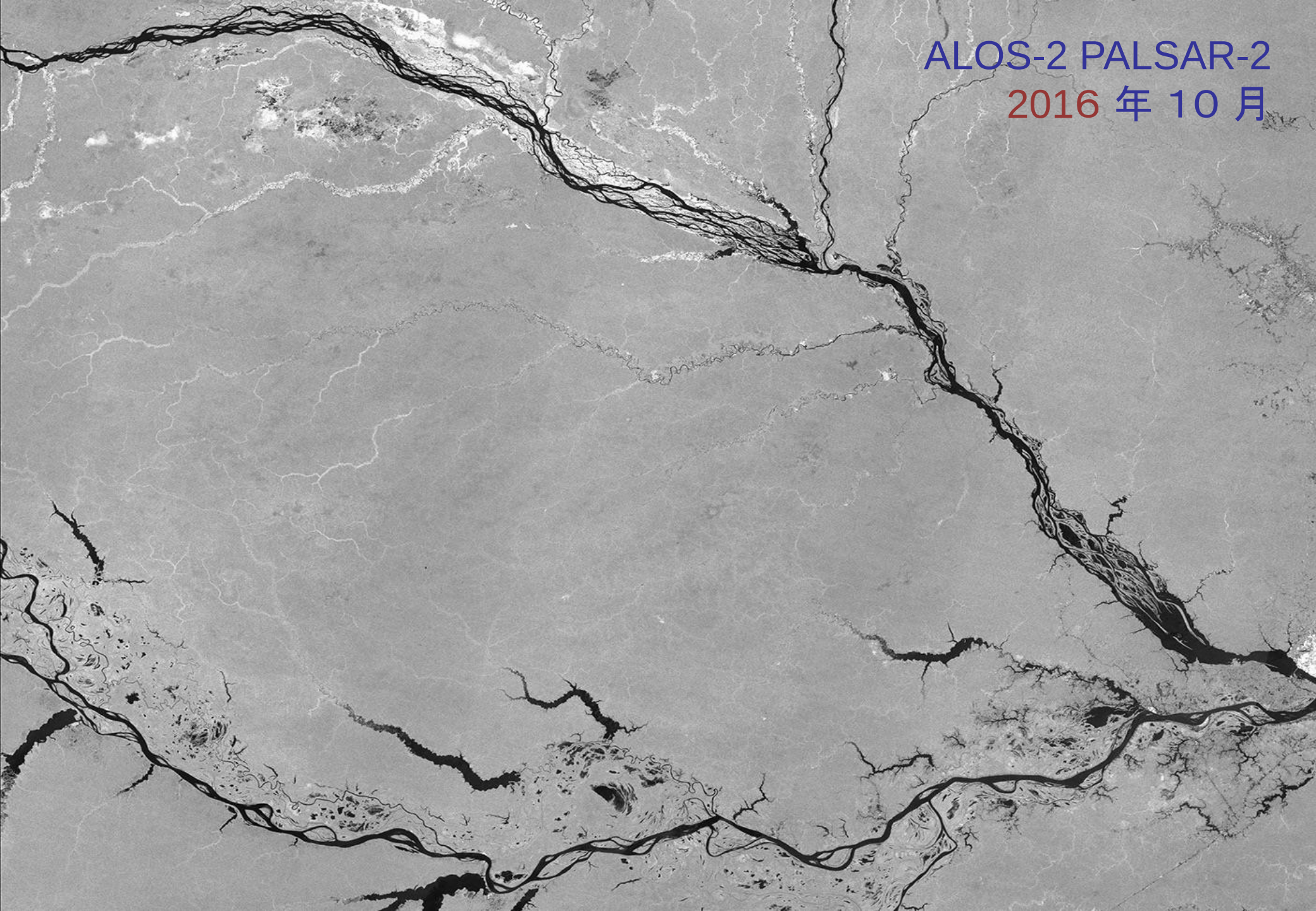

ALOS-2 PALSAR-2
2016 年 4 月

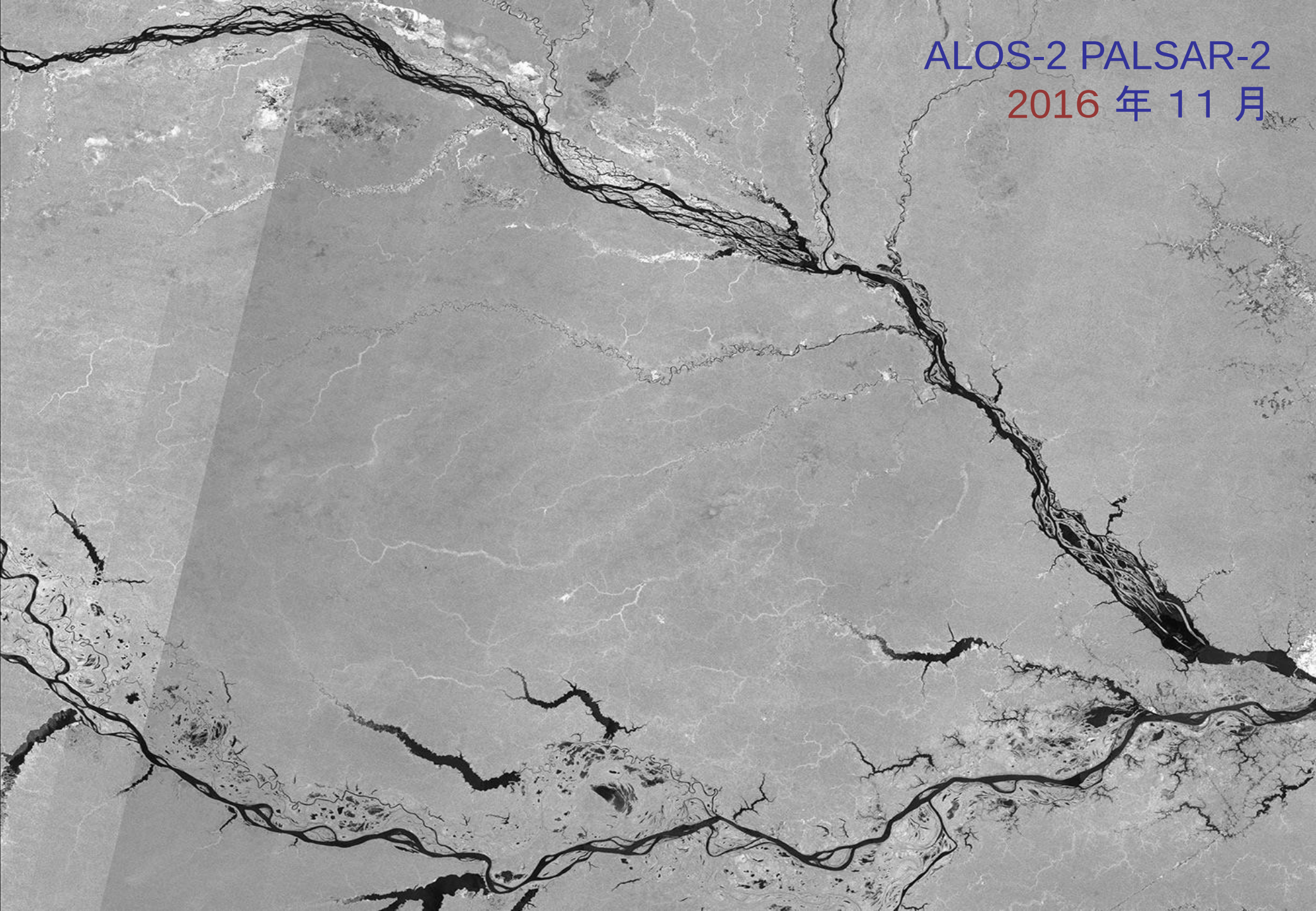

ALOS-2 PALSAR-2
2016 年 5 月

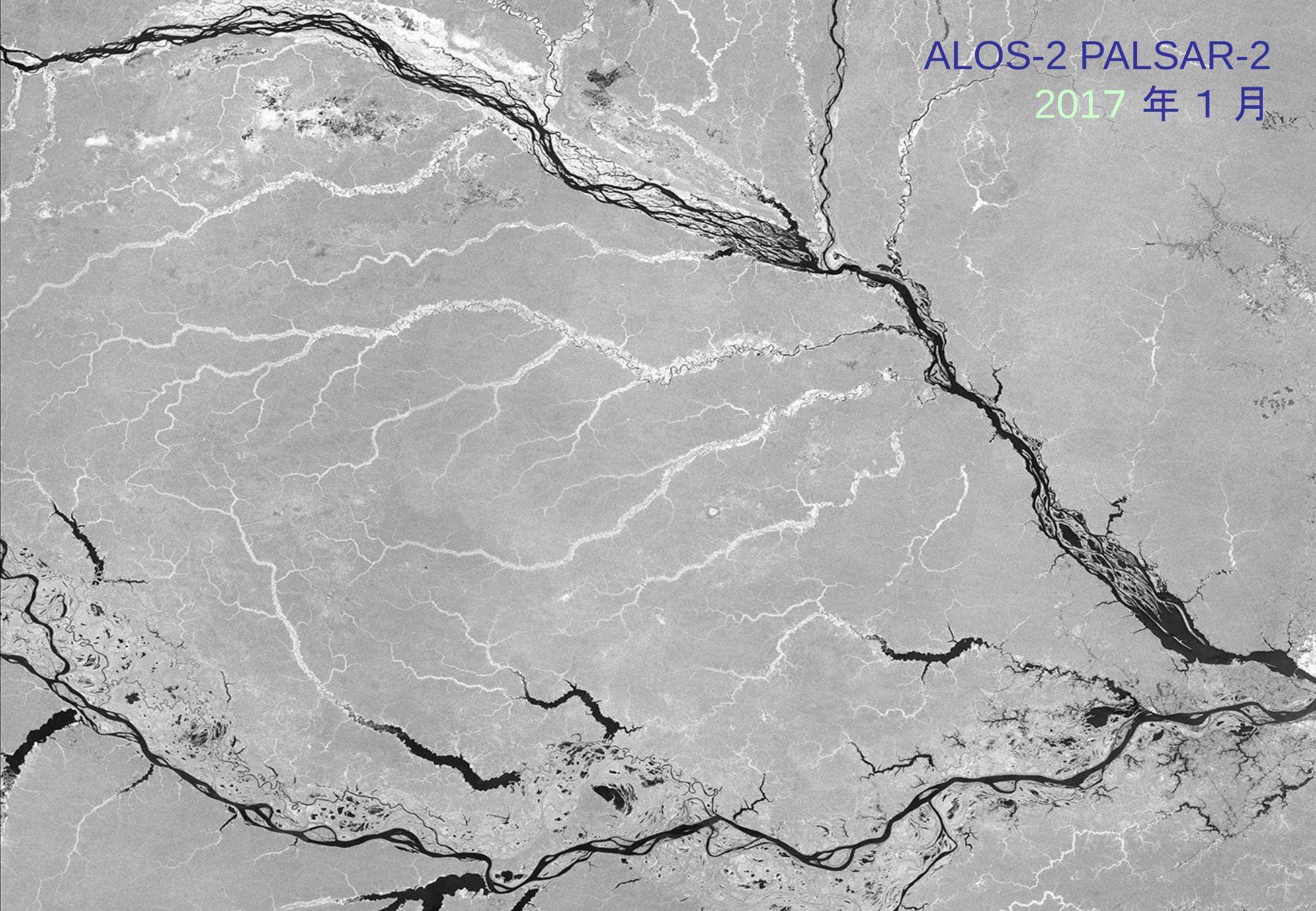

ALOS-2 PALSAR-2
2016 年 6 月


ALOS-2 PALSAR-2
2016 年 7 月


ALOS-2 PALSAR-2
2016 年 9 月


ALOS-2 PALSAR-2
2016 年 10 月

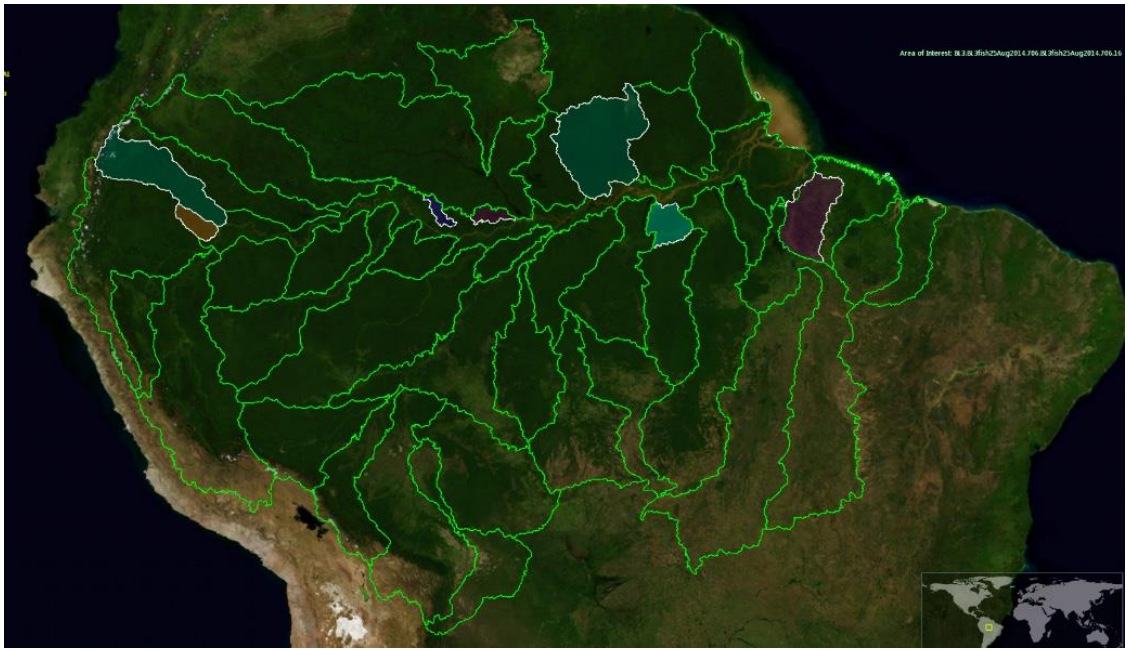

ALOS-2 PALSAR-2
2016 年 11 月


ALOS-2 PALSAR-2
2017 年 1 月

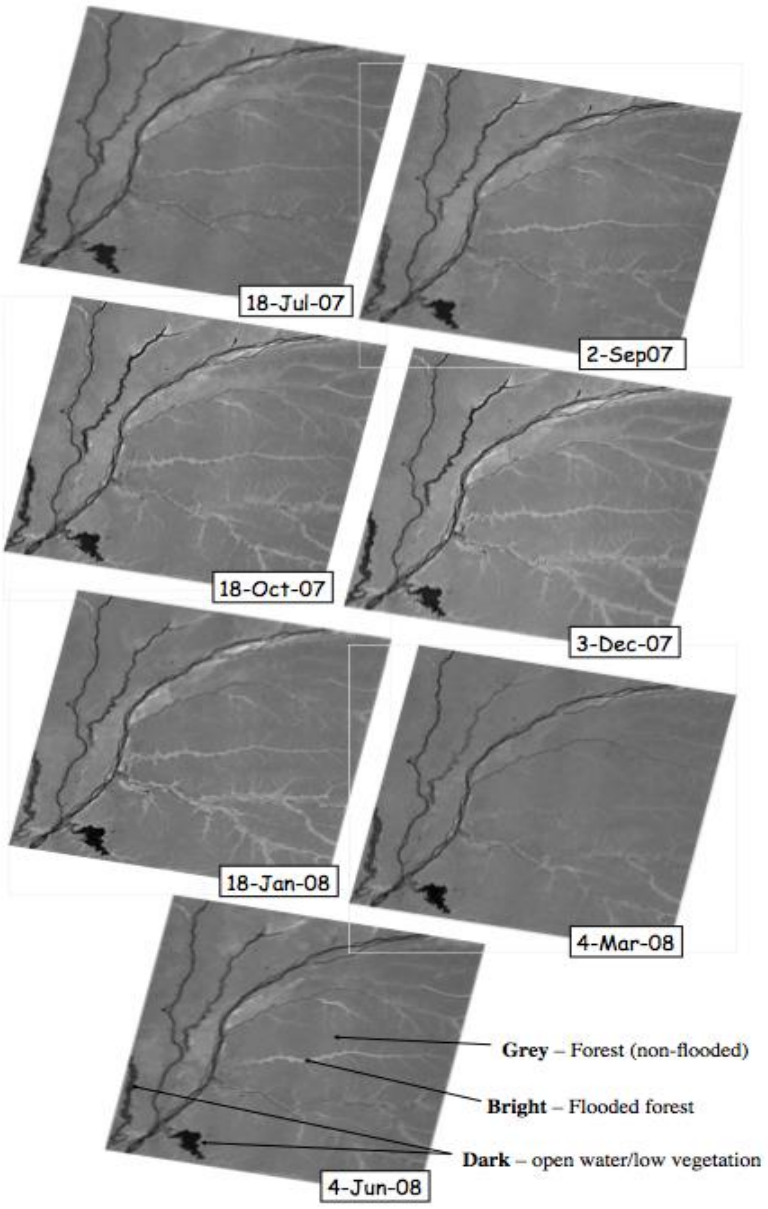
Plans – South America

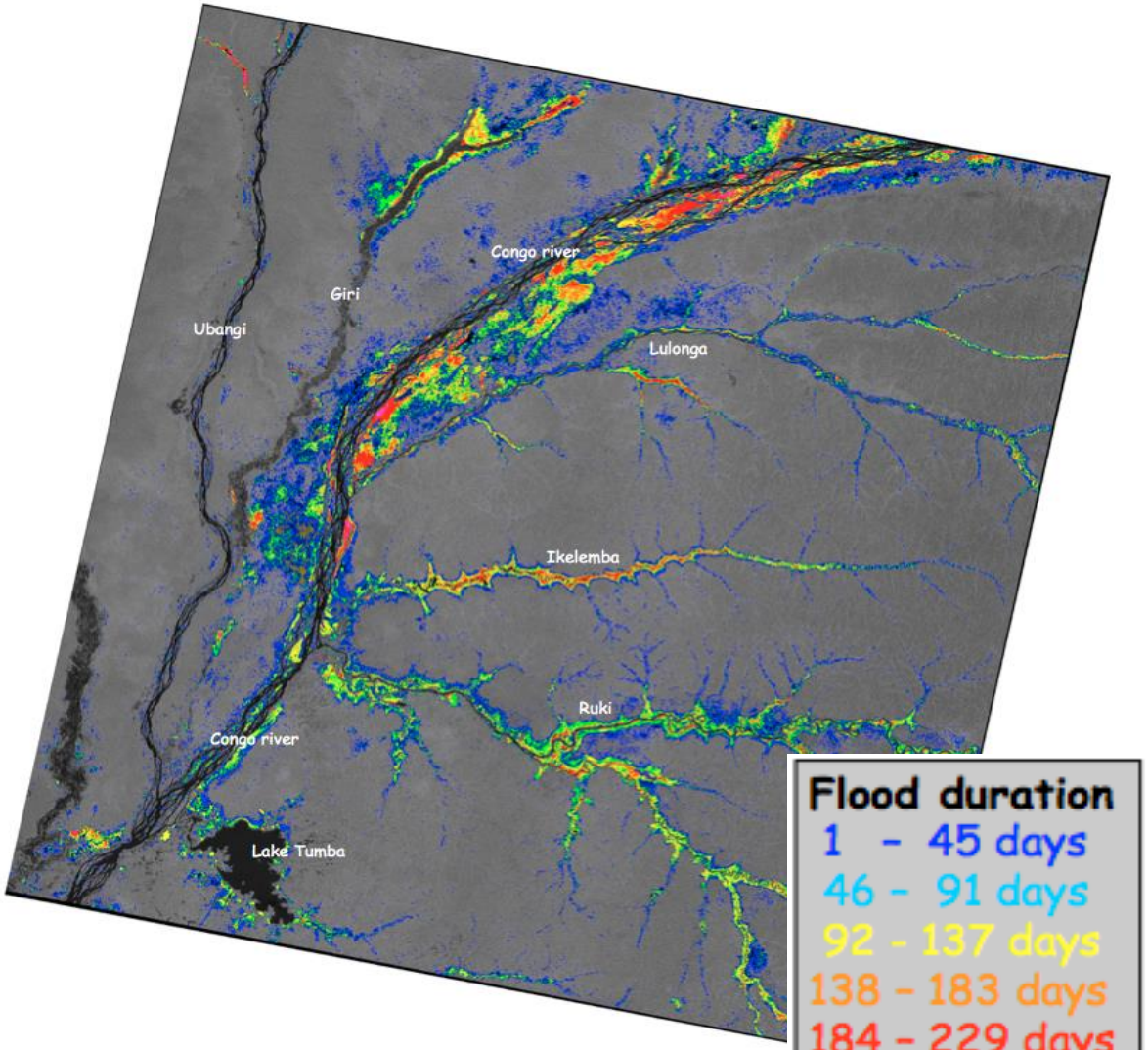
- Full Amazon basin
- Generation of ANNUAL MAX and ANNUAL MIN inundation extent for all 7 years available (2007-2010 & 2015-2017)
- All-time MAX and MIN
- At sub-basin scale
- Inundation duration

maps where data allow



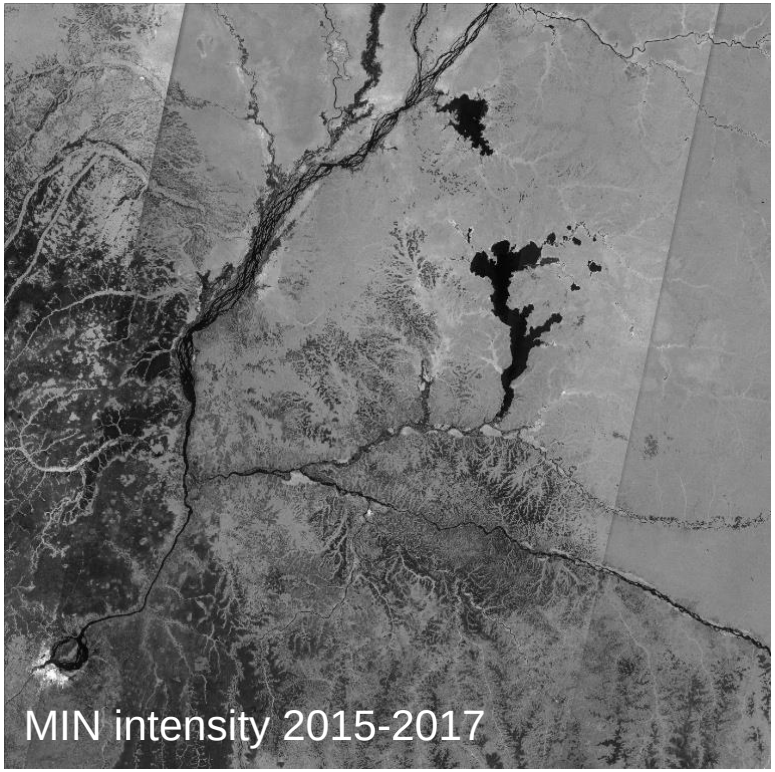
Mapping of inundation duration

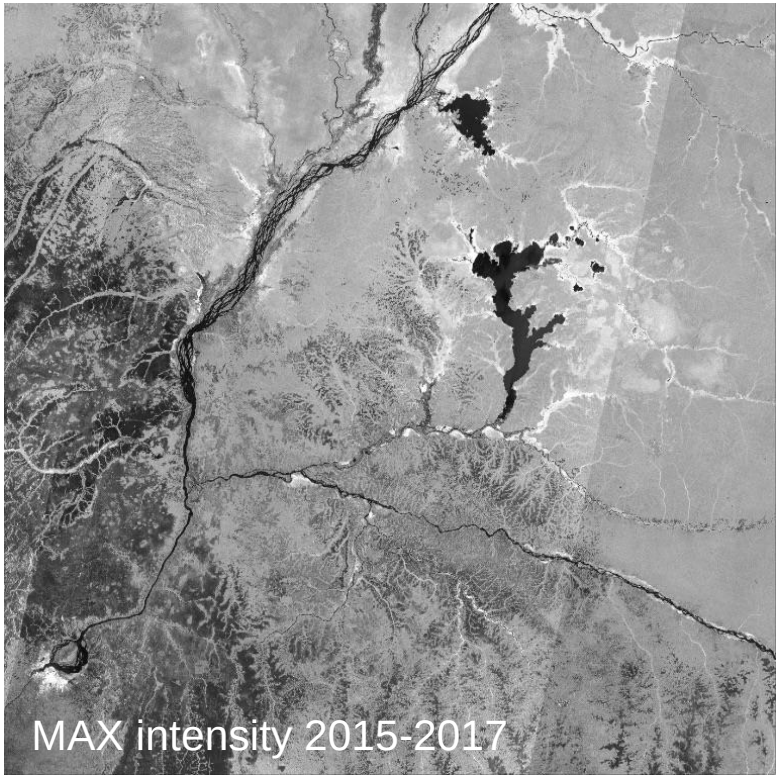




Plans – Africa

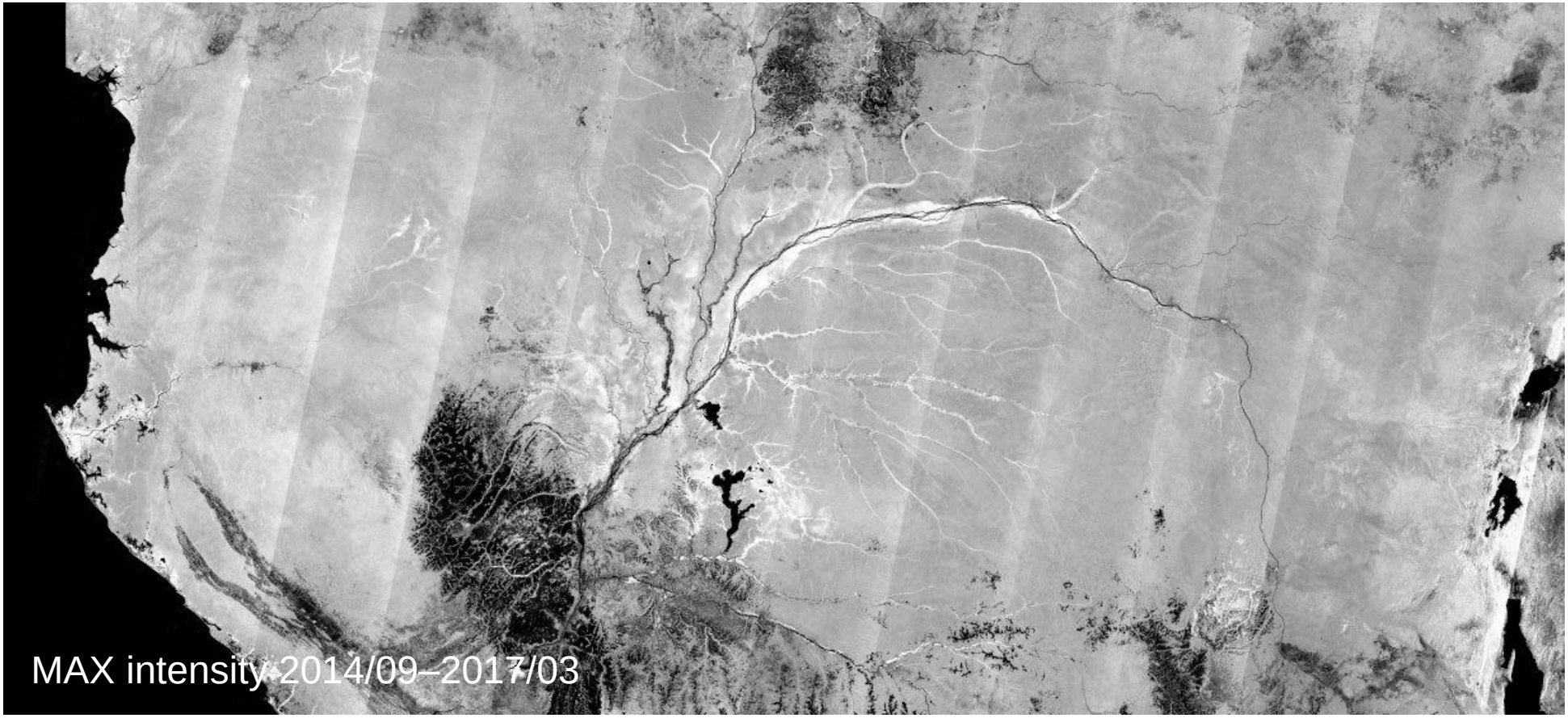
- Congo basin, Ogooué basin, Zambezi basin (parts)
- At least MAX and MIN inundation extent for the 2015-2017 period
- As far as data allows: Annual max and min and inundation duration maps at sub-basin level


MIN intensity 2015-2017


MAX intensity 2015-2017

Plans – Africa

- ScanSAR acquisition success rate varies between regions, leaving gaps in the coverage



What's new

Data availibility

-Time-series over 7 annual epochs since 2007 (and counting)

-With K&C research programme, JAXA has assembled all ALOS and ALOS-2 ScanSAR data into regional (1° x1°) mosaics

Processing capacity

-Recent developments in computing capacity allow us to handle large amounts of data required for continental/sub-continental scale time-series mapping

Policy relevance

-e.g. SDG 6.6.1 (wetlands extent)

-Carbon cycle – CH4 from wetlands

Potentials

- Unprecedented capacity to map below-canopy inundation extent over continental/sub-continental scales
- Improved geospatial information about inundation regimes in (forested) Ramsar sites and other key wetlands
- Indicator of disturbance

Notes

- Intergration of C-band SAR (Sentinel-1A/B) time-series
- The usefulness of L-band and C-band time-series for characterisation of other wetland types
- Current efforts undertaken within the research domain (voluntary). Longer term operational activity desired.