

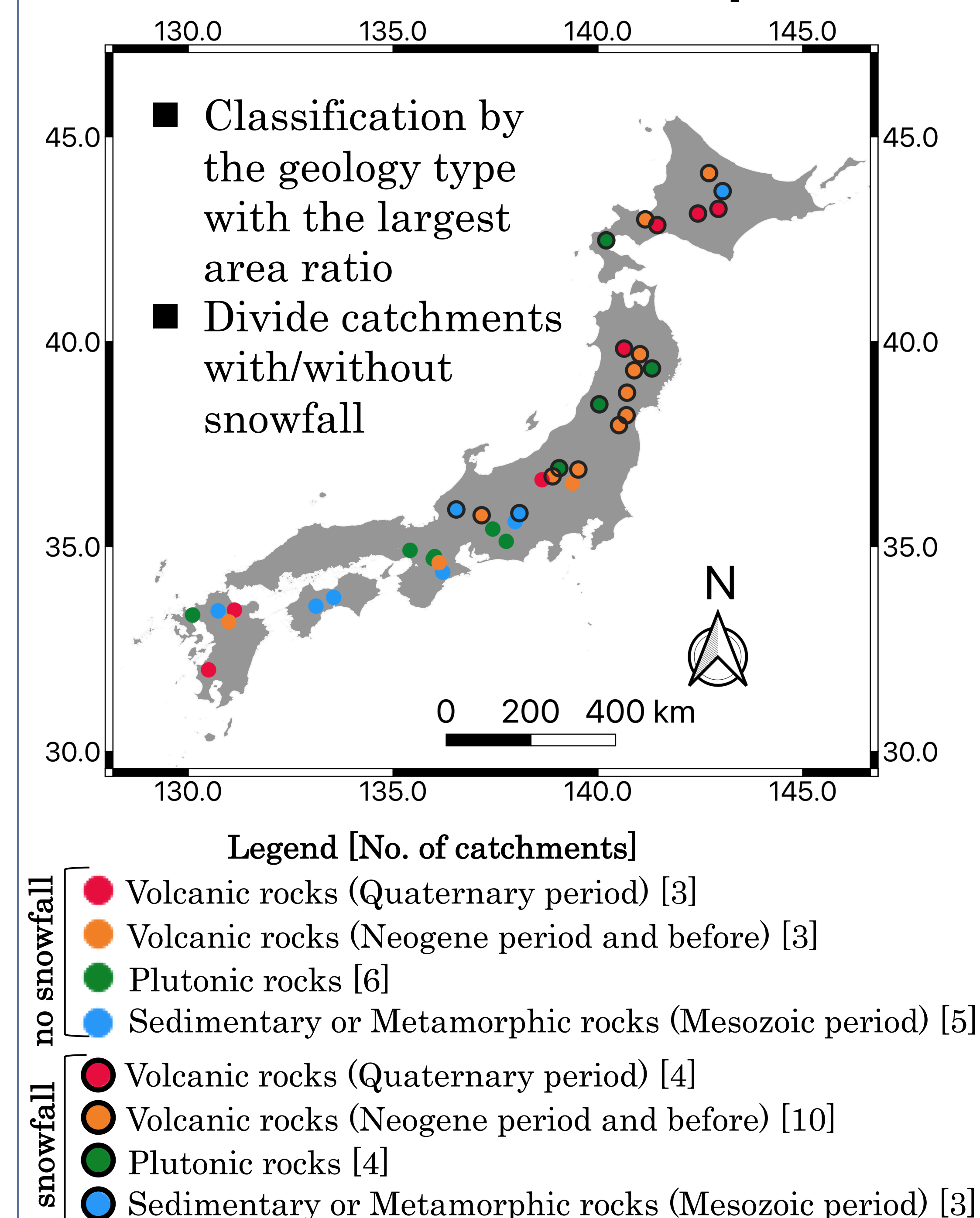
Objectives

- 1) To clarify the period for calculating the total precipitation that is influential to several levels of daily flow respectively
- 2) To clarify how ‘the influential period of total precipitation’ differs by the geological characteristics of catchments

Key findings

1. For catchments without snowfall :
Geology with larger water-retaining capacity makes the period of total precipitation that is influential to flow longer.
The difference by catchment geology is more significant in lower flows.
2. For catchments with snowfall :
Duration of snowfall period seemed to be the dominant factor of the period of total precipitation that is influential to lower flows, while geology has little effect.

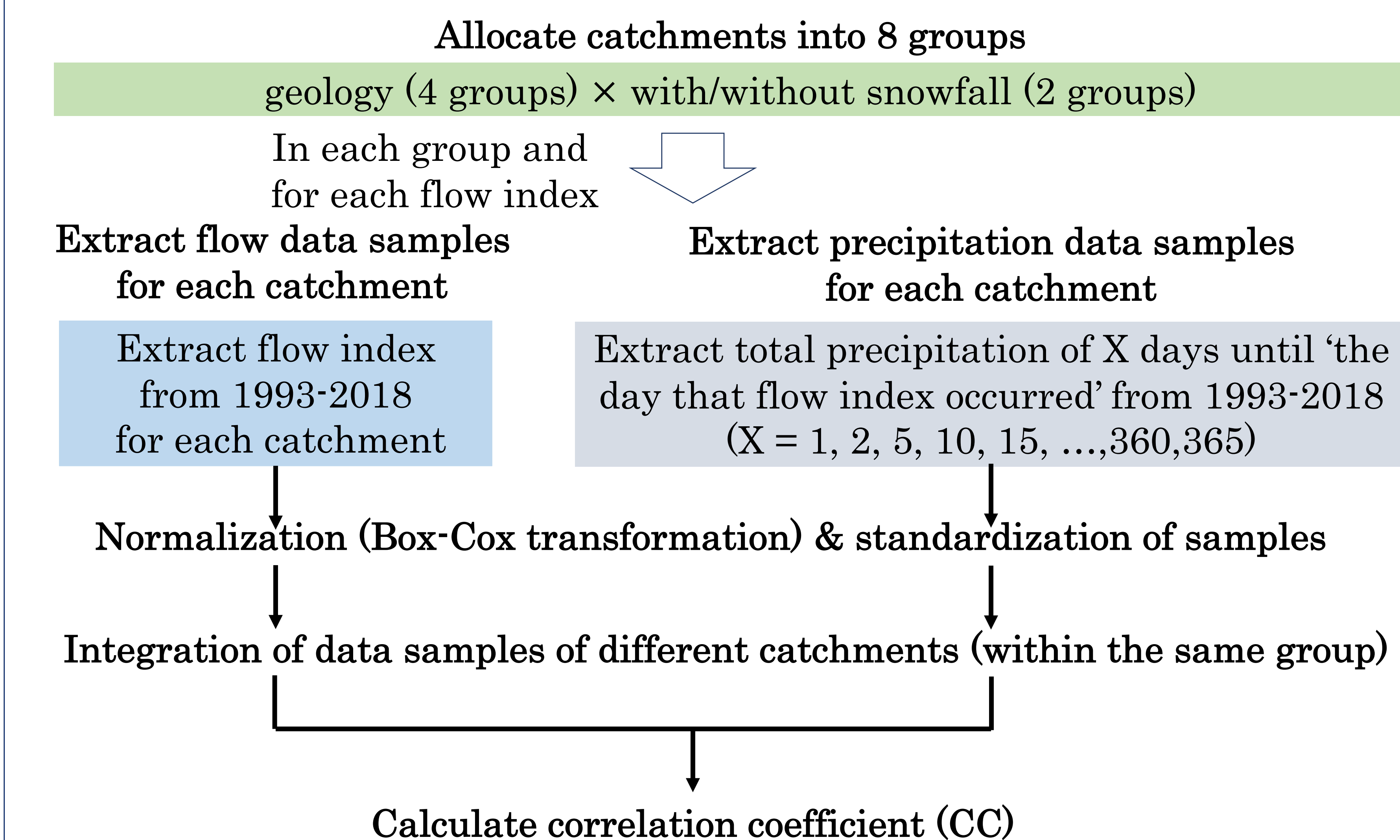
Target areas : dam catchments in Japan



Methods

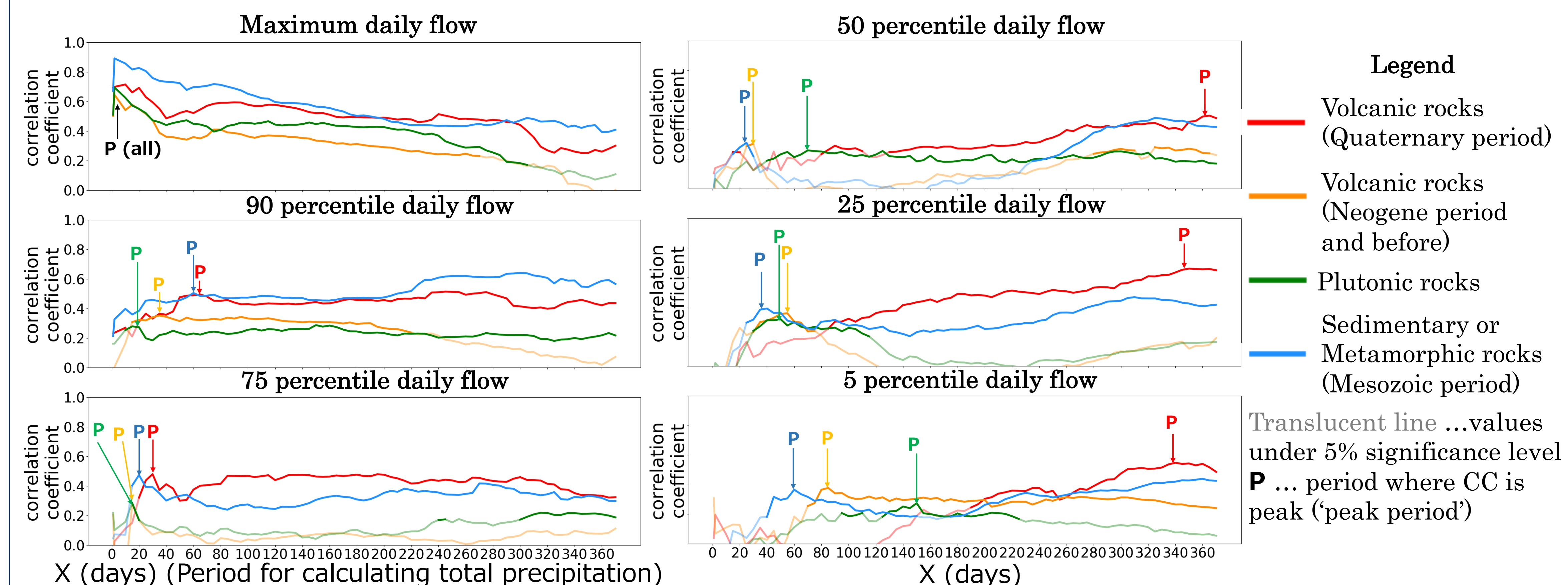
1. Select 6 flow indices representing various levels of flow
Maximum daily flow and 90, 75, 50, 25, 5 percentiles of daily flow within a year

2. Calculate the correlation coefficient between each flow index and the total precipitation of various periods



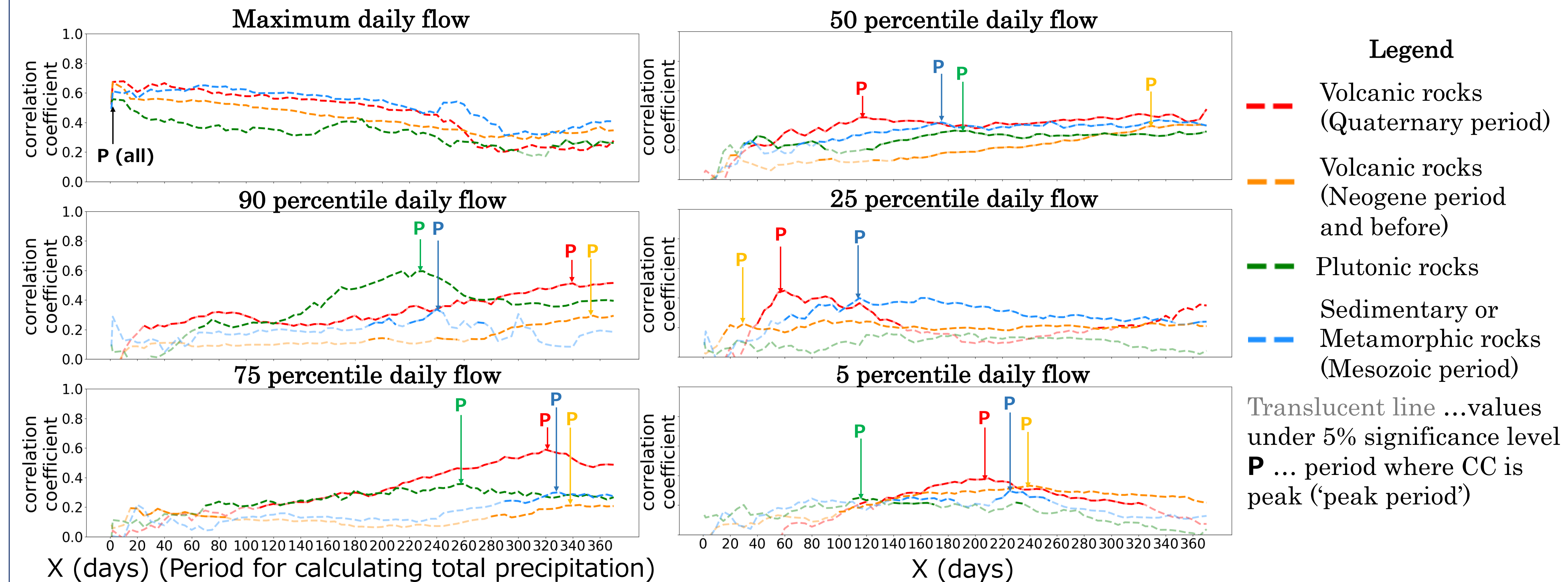
Results & discussions

Catchments without snowfall



- Maximum daily flow : CC is highest with total precipitation of 2 days regardless of geological classification
- 90, 75, 50, 25, 5 percentiles of daily flow : CC increases as the period for total precipitation increases until a certain period ('Peak period'), and then levels off or decreases.
'Peak period' differs between volcanic rocks (Quaternary period) and others especially in 50, 25, 5 percentiles of daily flow... Water-retaining capacity of each geology is influential for lower flows

Catchments with snowfall



- Little difference between different geological classification
- Maximum daily flow : similar results with catchments without snowfall
- 90, 75, 50 percentiles of daily flow : CC tends to become high with total precipitation of long periods (over 300 days)
- 25, 5percentiles of daily flow : CC seems to be high with total precipitation of winter period (snowfall period) (these flows mainly occur at the end of winter ~ the beginning of spring)