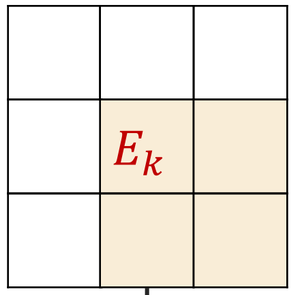
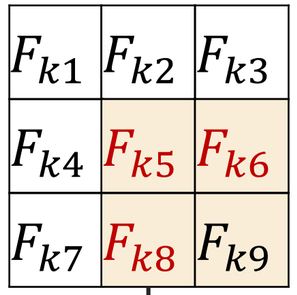
Step 1: Precipitation fraction calculation

ET data from ERA5

UTrack

E_k: ET in source grid k

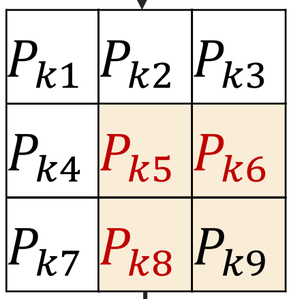




F_{kl}: Fraction of ET from source grid k that generate precipitation in sink grid l

$P_{kl} = E_k \times F_{kl}$

Precipitation in sink grid l originating from of ET in source grid k



Step 2: Aggregate grids to the province scale

$$W_{i,j} = \frac{\sum_{k \in i, l \in j} P_{kl}}{\sum_{i \in n} \sum_{k \in i, l \in j} P_{kl}}$$

n is the province count

W_{ij}: Fraction of precipitation in sink province j originating from source province i

Within China mainland
Outside China mainland