

**Figure A1** Spatial density distribution of gauge station used to generate CPAP product in the study area.



**Figure A2** Spatial density distribution of gauge station used to adjust GPCC product in the study area.



**Figure A3** Spatial density distribution of gauge station used to generate and adjust CPC product in the study area.

**Table A1** Gauge stations used for generating or adjusting the three products and the same stations numbers between CPAP and CPC, GPCC products for eight river basins.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | CPAP | CPAP&CPC | CPAP&GPCC | CPC | GPCC |
| Songhua River | 140 | 14 | 5 | 36 | 74 |
| Liaohe River | 78 | 13 | 5 | 21 | 34 |
| Haihe River | 239 | 21 | 16 | 24 | 42 |
| Yellow River | 293 | 23 | 13 | 37 | 88 |
| Huaihe River | 197 | 23 | 25 | 24 | 44 |
| Yangtze River | 645 | 49 | 38 | 115 | 182 |
| Southeast River | 102 | 21 | 12 | 31 | 54 |
| Pearl River | 223 | 31 | 15 | 60 | 64 |
| Station Numbers | 1917 | 195 | 129 | 348 | 582 |

**Note:** GPAP&CPC means the same stations used in CPAP and CPC products, the same for CPAP&GPCC