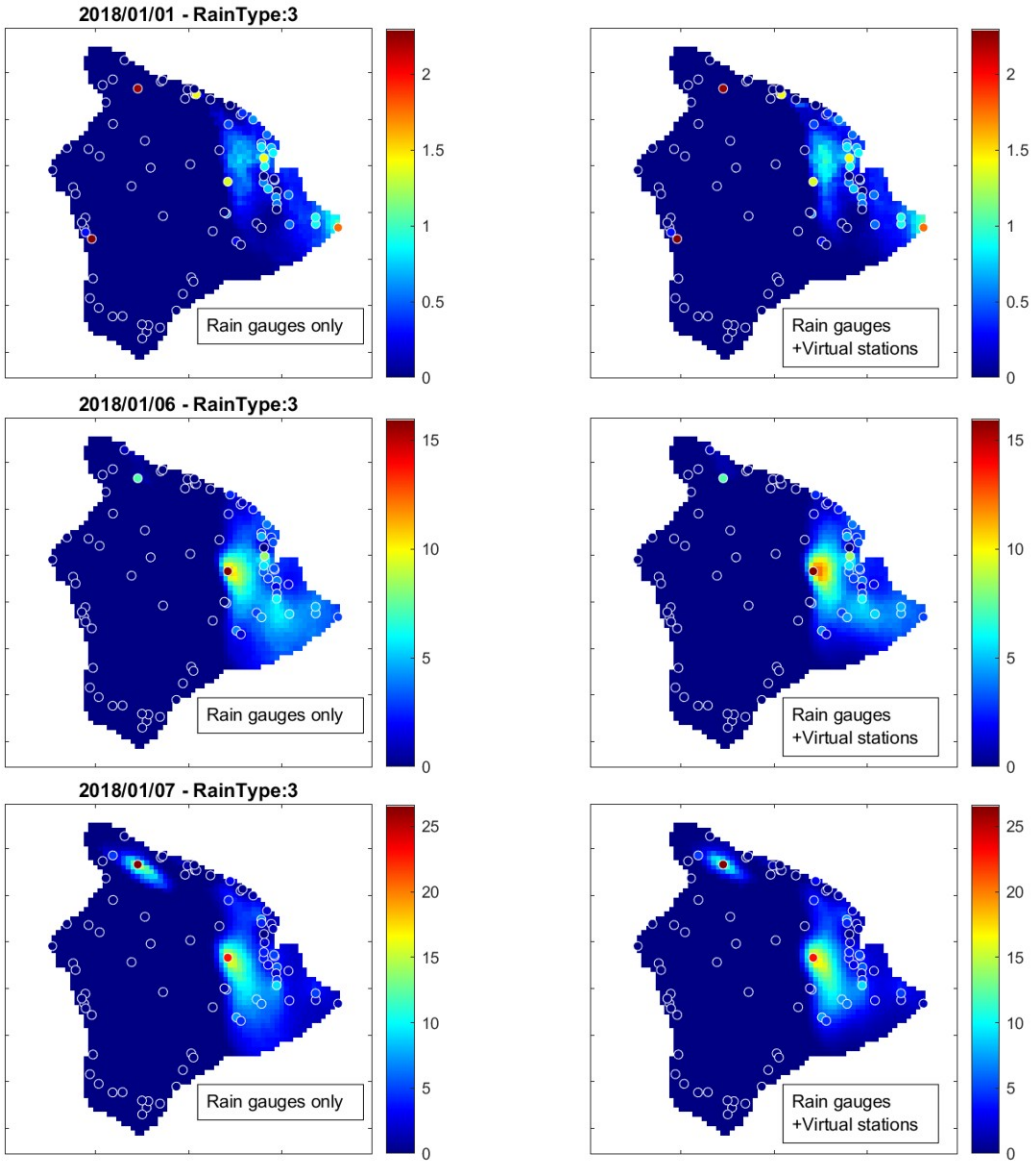
Supplementary material for the paper:

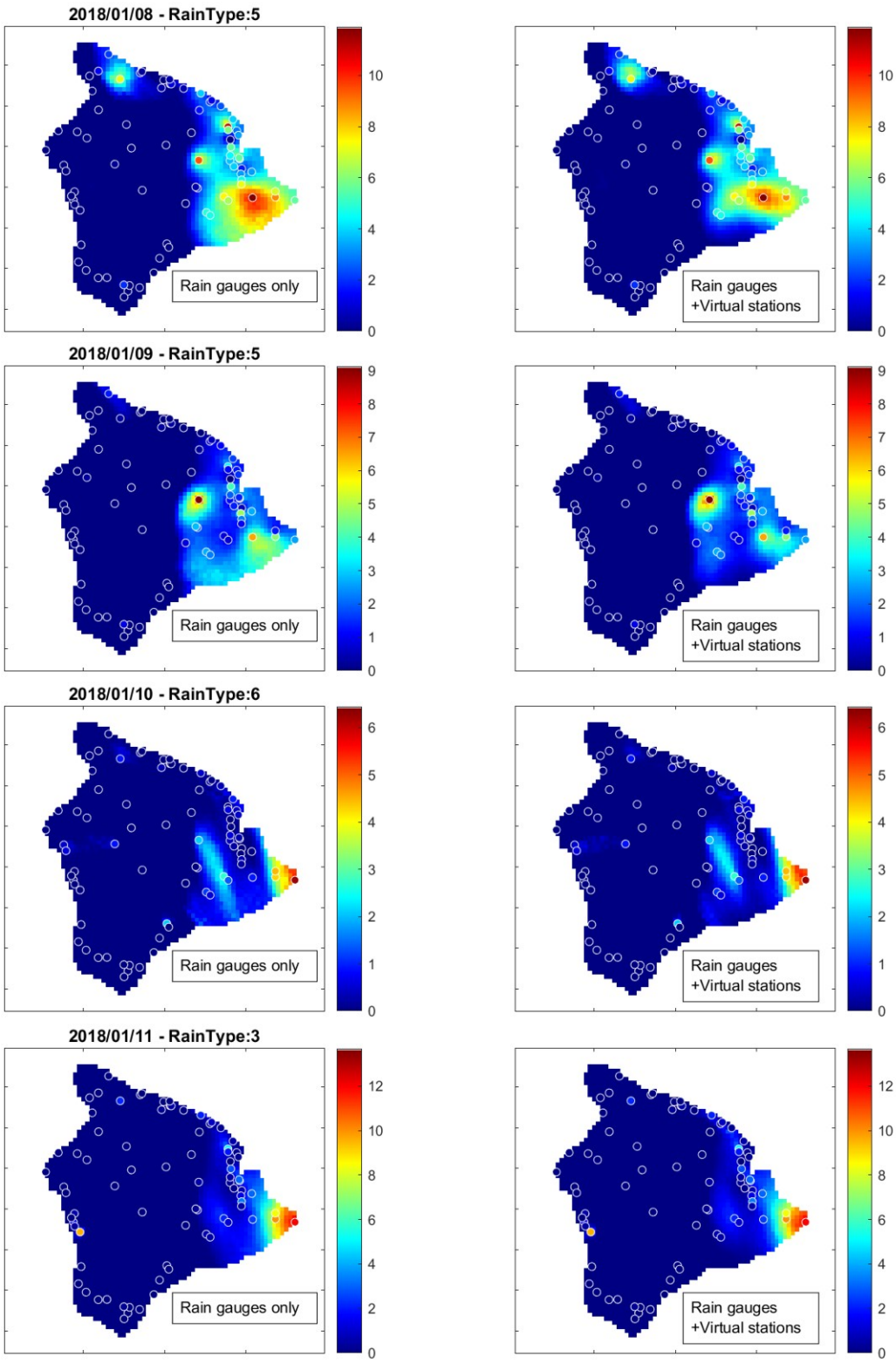
A non-stationary trans-Gaussian model for daily rainfall over complex topography

Lionel Benoit, Matthew P. Lucas, Denis Allard, Keri M. Kodama, and Thomas W. Giambelluca

Supplementary Material 1:

Daily rainfall maps for the month of January 2018 obtained by stochastic simulations conditioned to rain gauges only (column 1) and conditioned to rain gauges and 200 virtual stations (column 2). The colored dots denote rain gauge observations and the background color is the rainfall map. For each day the rain type is given in addition to the date. Note that the color scale changes from day to day to accommodate the temporal variation of daily rainfall intensity, and that January 2, 3, 4 and 5 are not displayed here because they were dry throughout the island.

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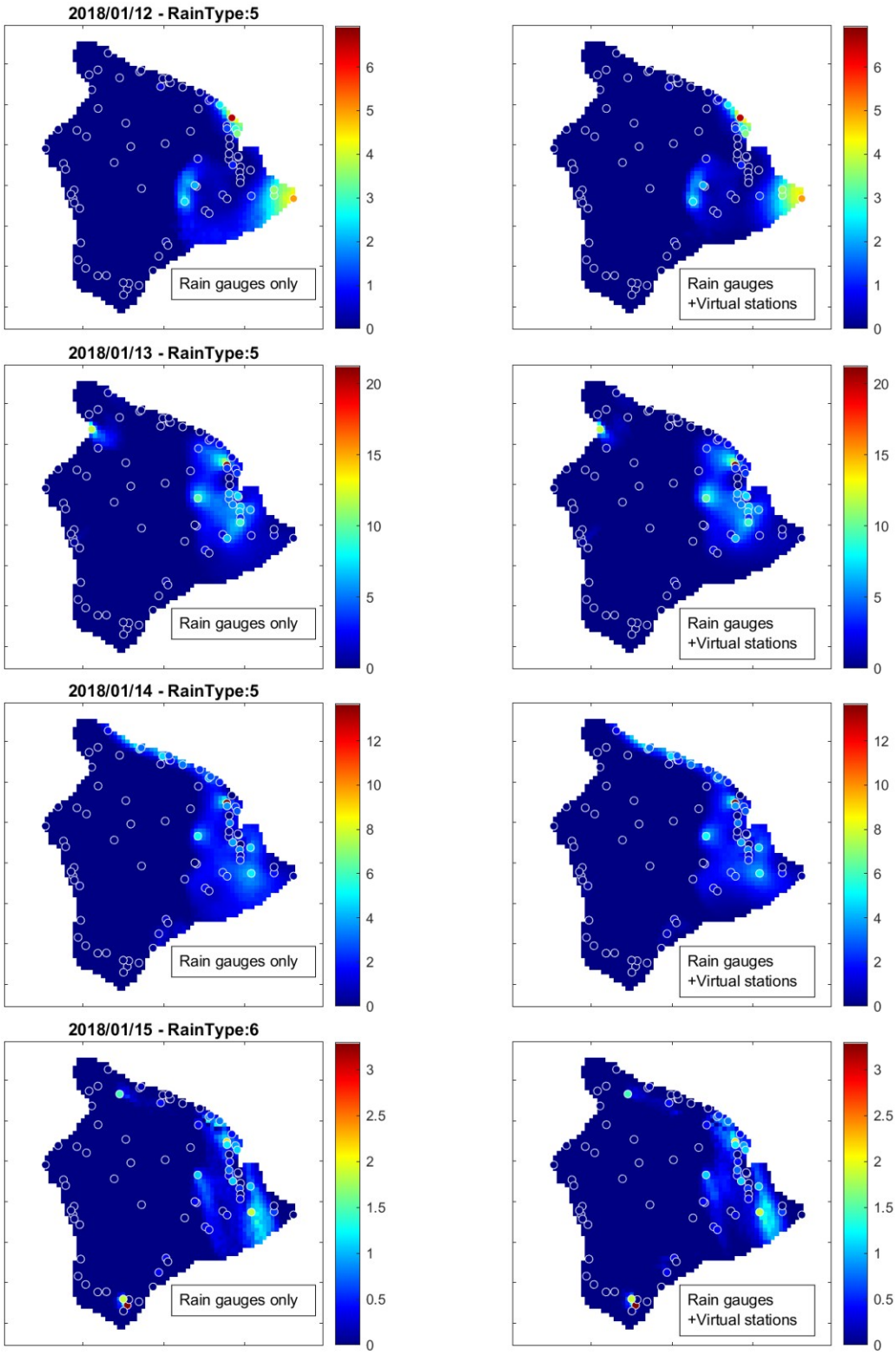
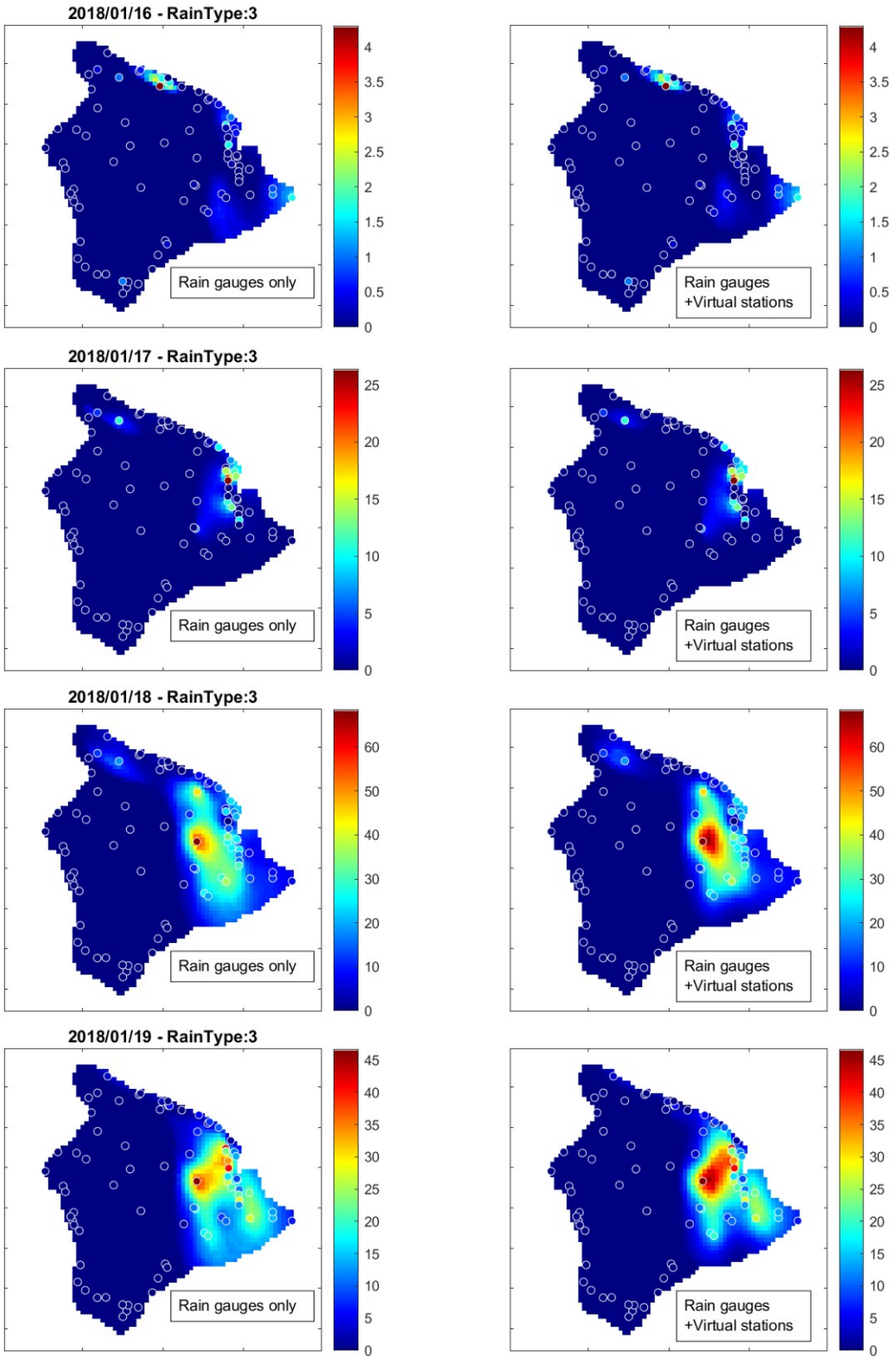
Rain gauges only
Rain gauges
+Virtual stations
2018/01/09 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/01/10 - RainType:6
Rain gauges only
Rain gauges
+Virtual stations
2018/01/11 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations


2018/01/12 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/01/13 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/01/14 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/01/15 - RainType:6
Rain gauges only
Rain gauges
+Virtual stations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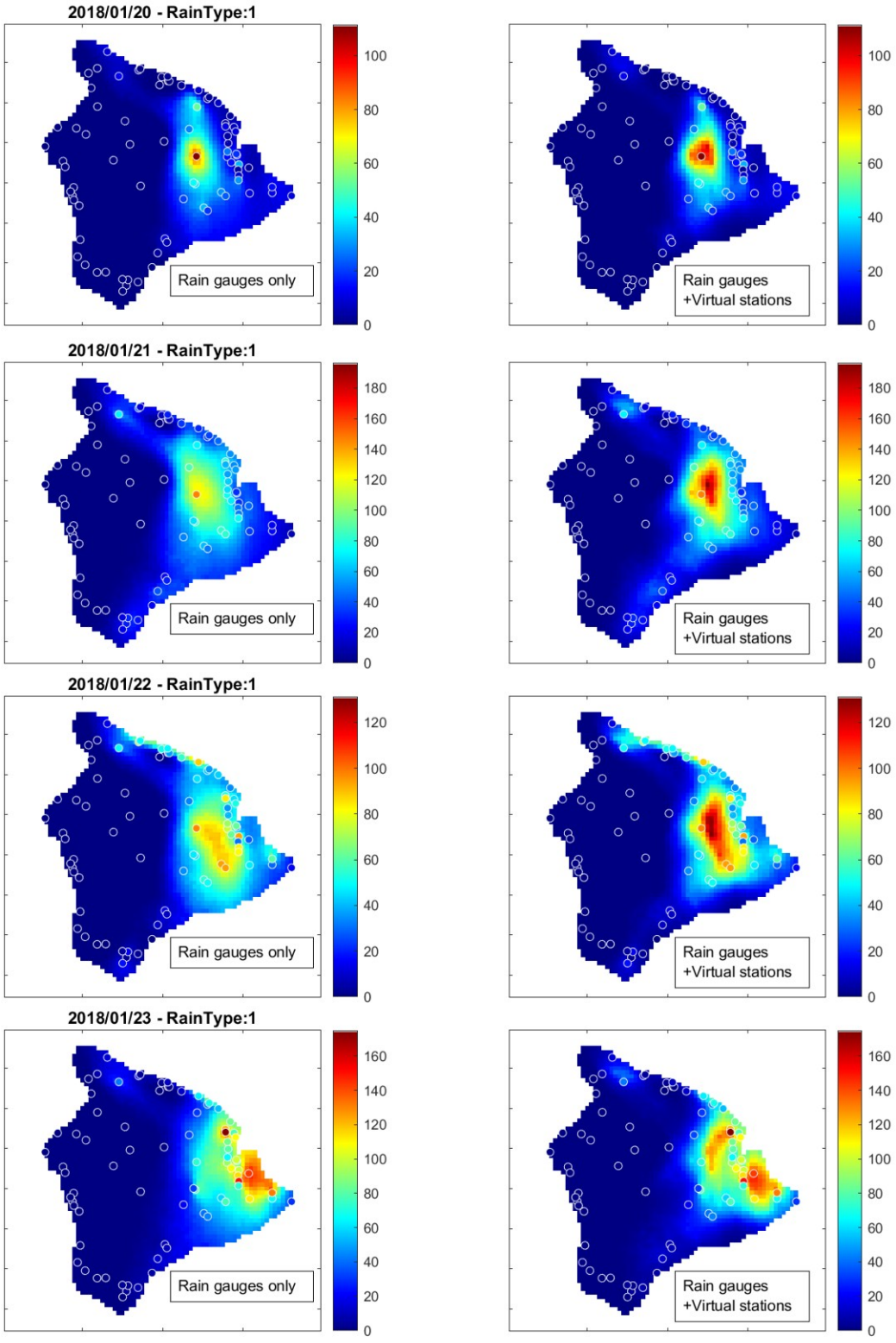
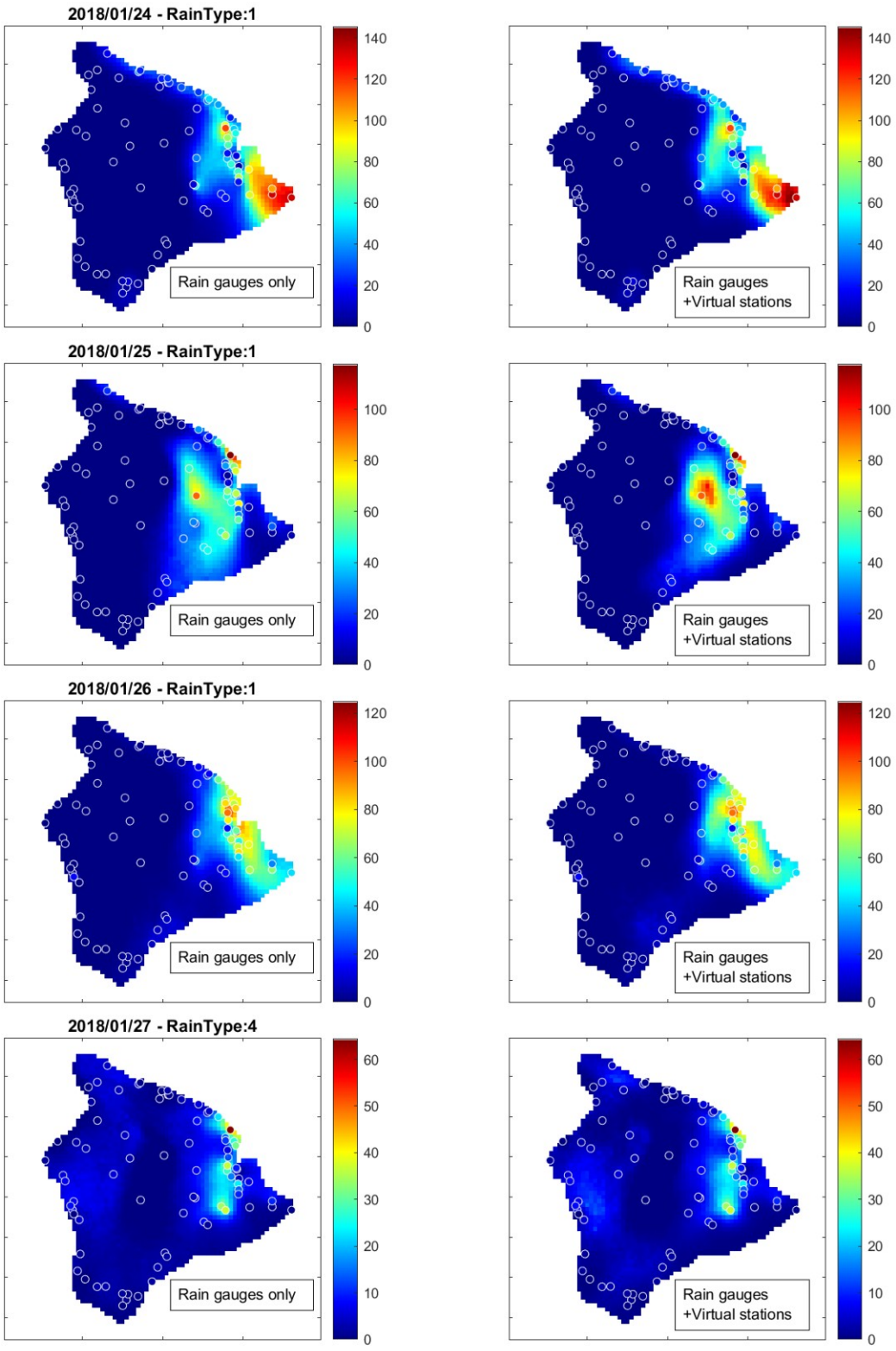
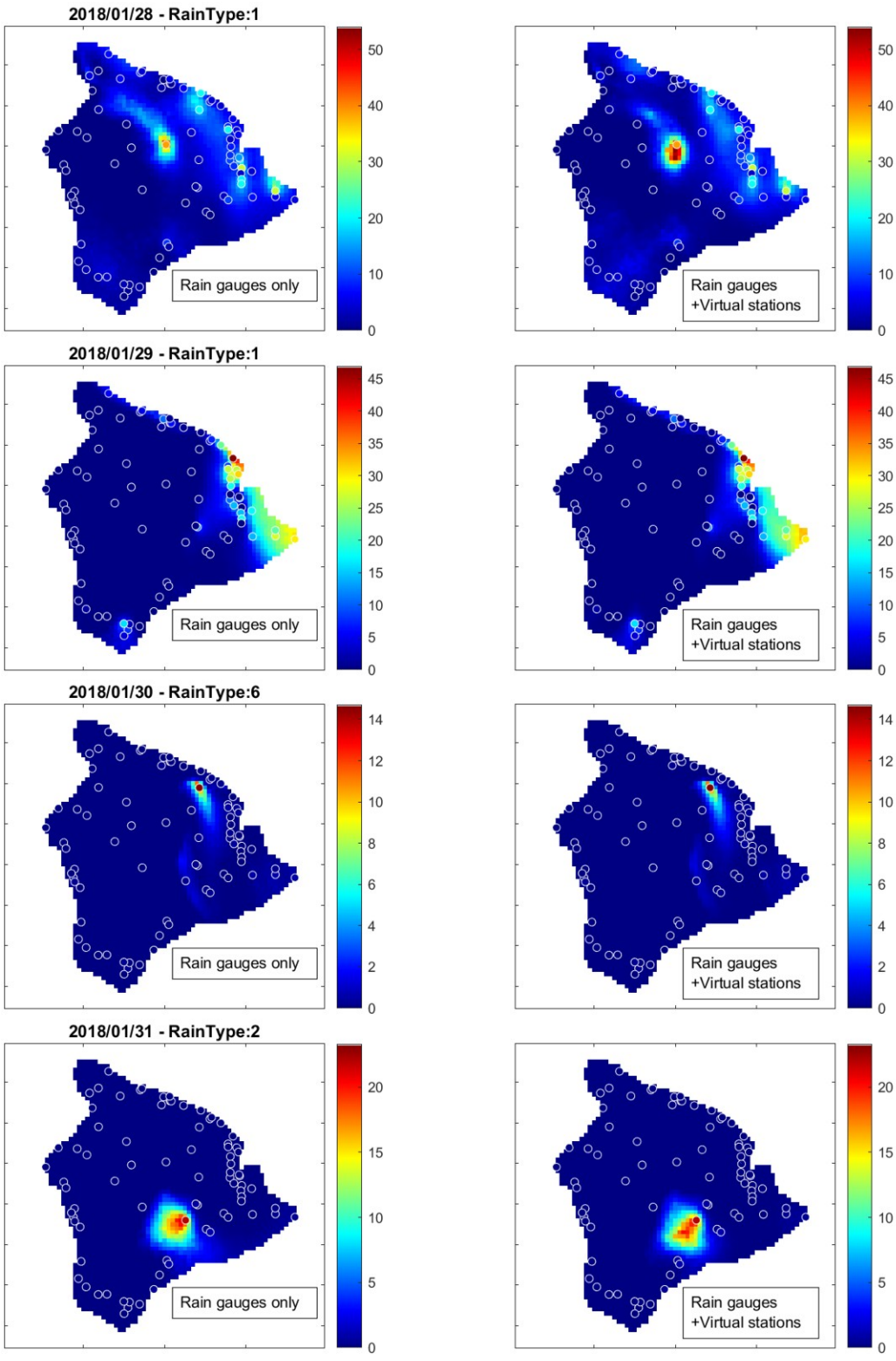
Rain gauges only
Rain gauges
+Virtual stations
2018/01/17 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations
2018/01/18 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations
2018/01/19 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations

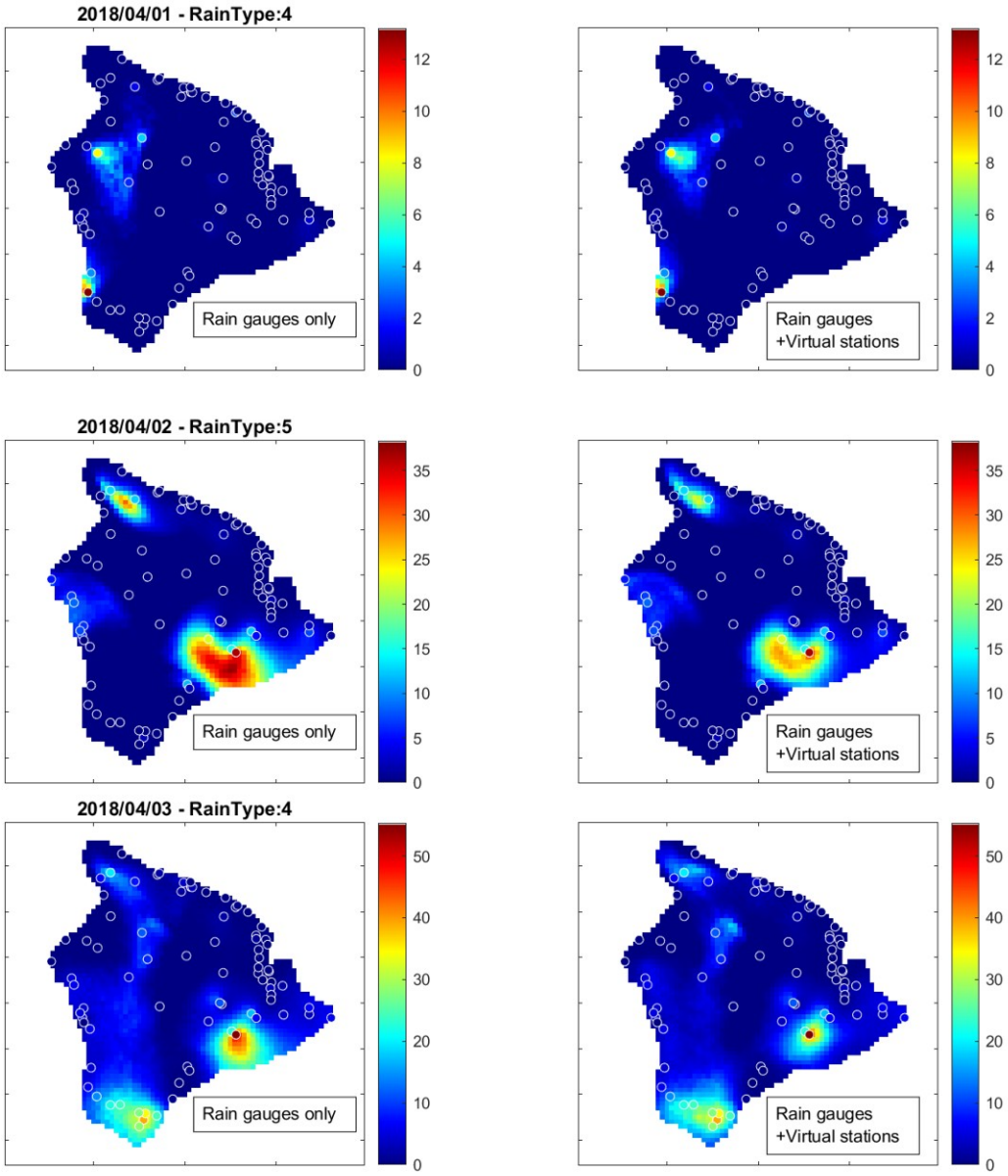

2018/01/20 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/21 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/22 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/23 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations


2018/01/24 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/25 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/26 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/27 - RainType:4
Rain gauges only
Rain gauges
+Virtual stations


2018/01/28 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/29 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/01/30 - RainType:6
Rain gauges only
Rain gauges
+Virtual stations
2018/01/31 - RainType:2
Rain gauges only
Rain gauges
+Virtual stations

Supplementary Material 2:

Daily rainfall maps for the month of April 2018 obtained by stochastic simulations conditioned to rain gauges only (column 1) and conditioned to rain gauges and 200 virtual stations (column 2). The colored dots denote rain gauge observations and the background color is the rainfall map. For each day the rain type is given in addition to the date. Note that the color scale changes from day to day to accommodate the temporal variation of daily rainfall intensity.



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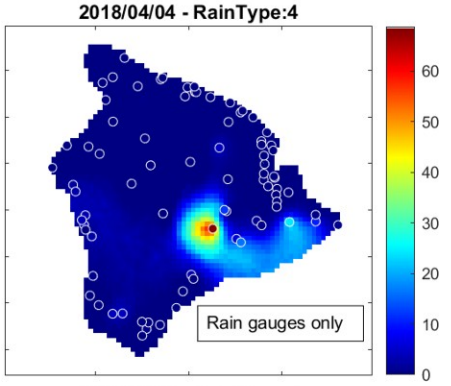

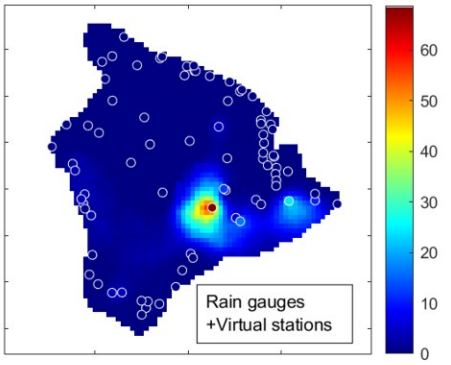

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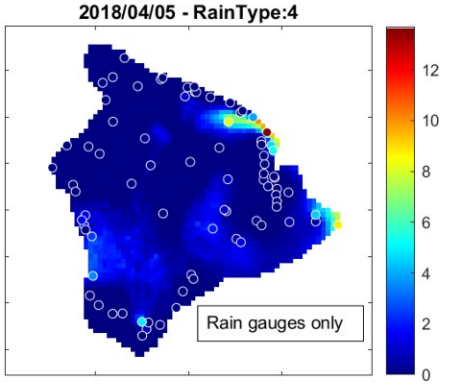
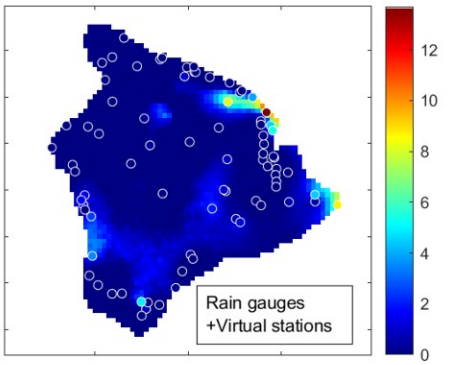
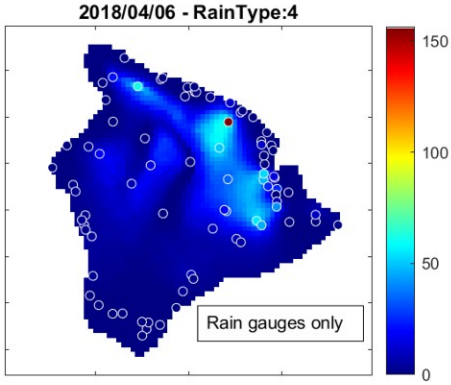
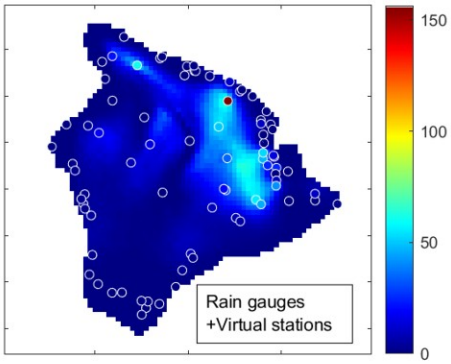


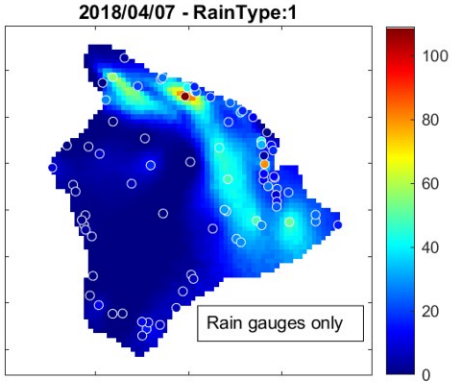


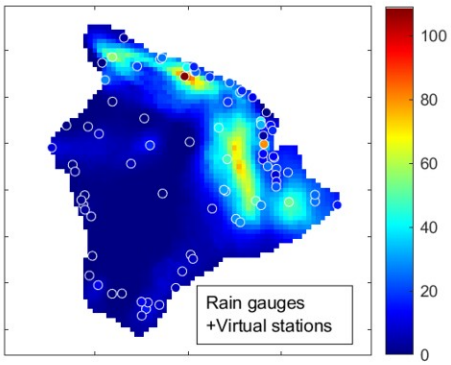
2018/04/06 - RainType:4

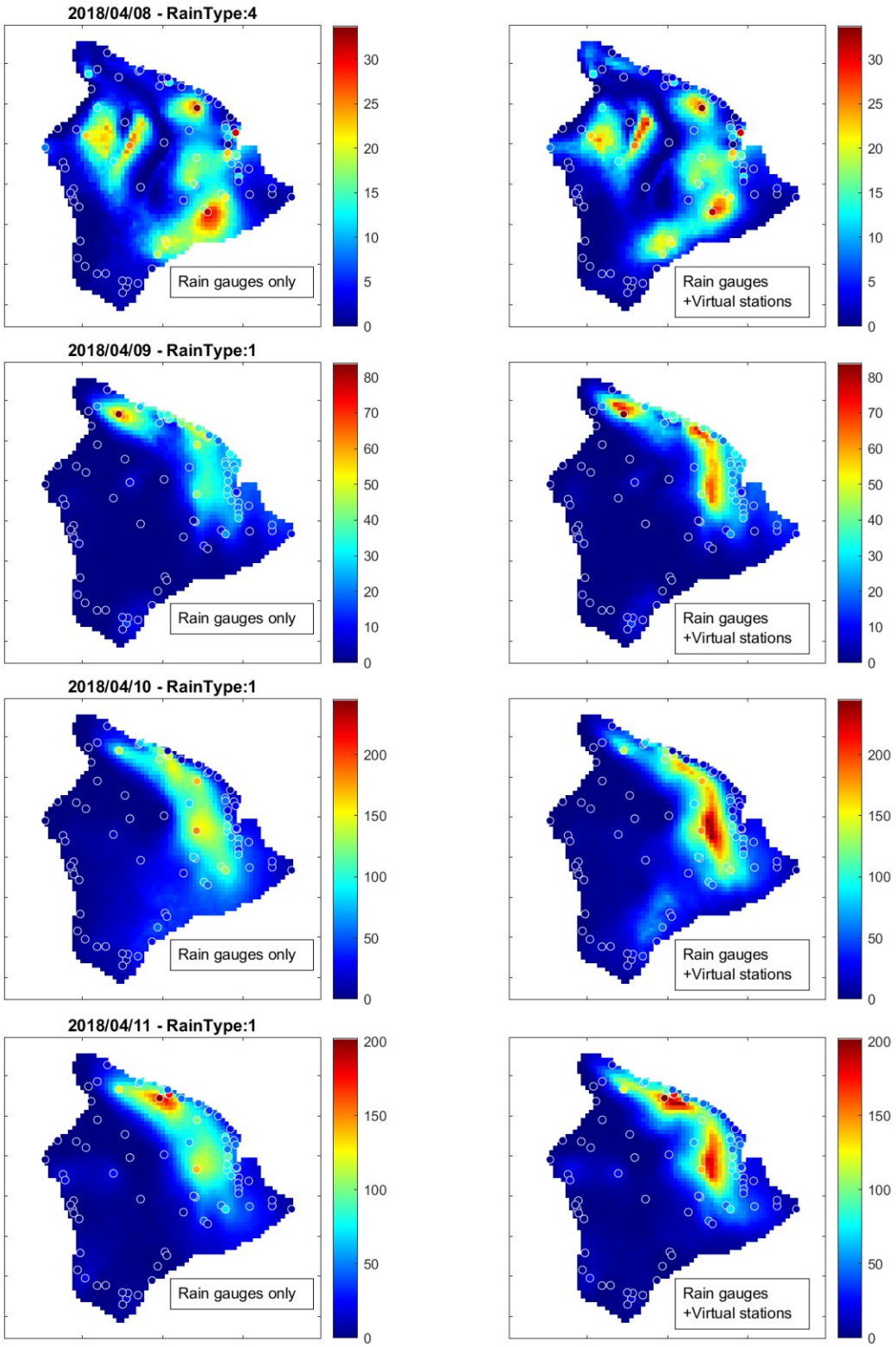


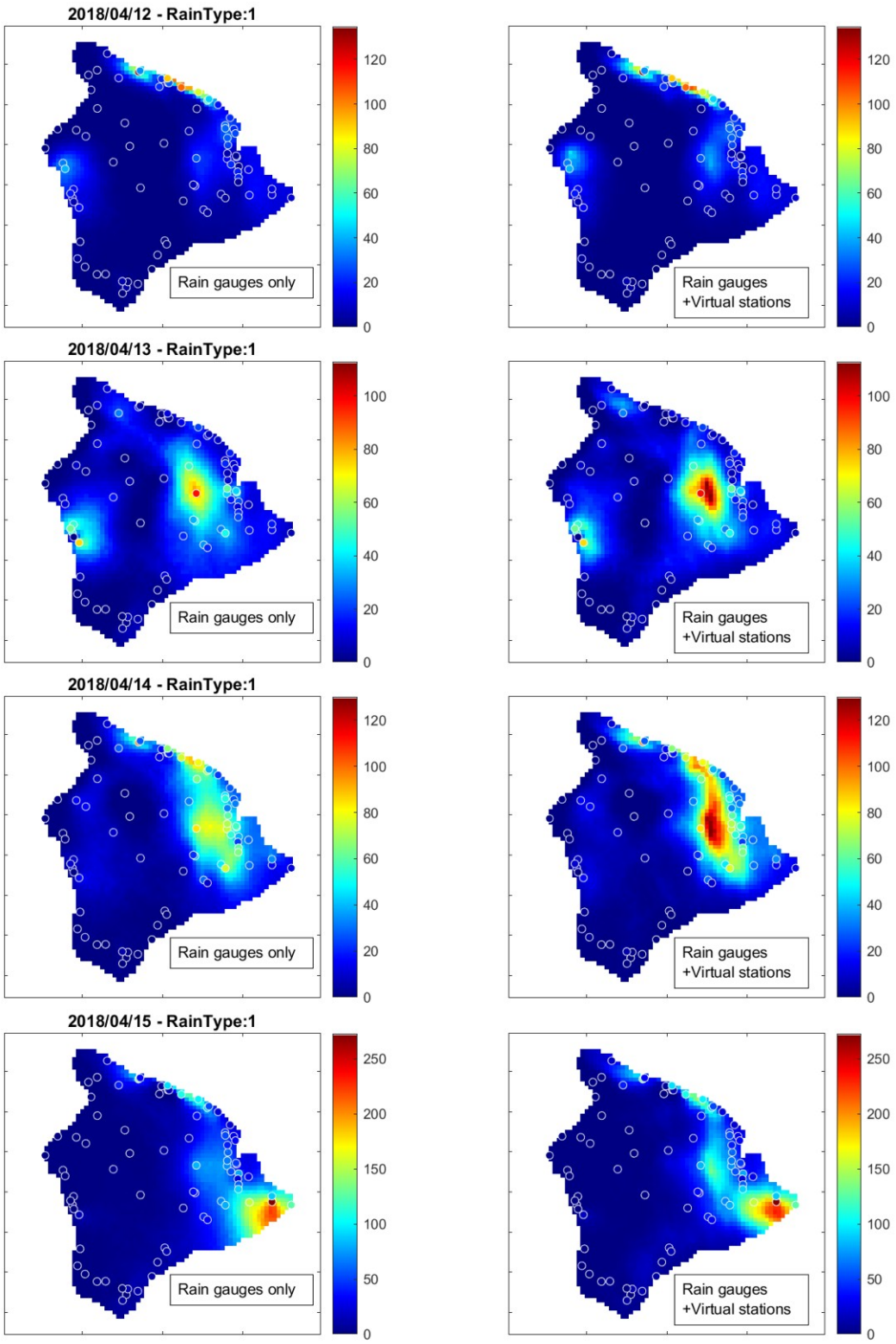


2018/04/07 - RainType:1

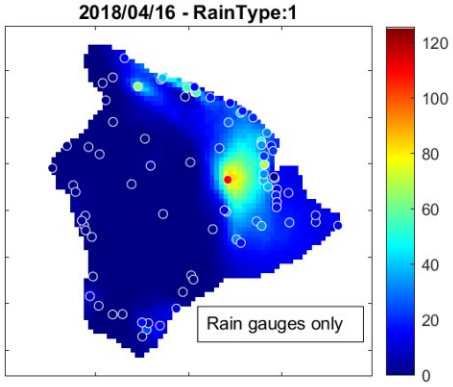


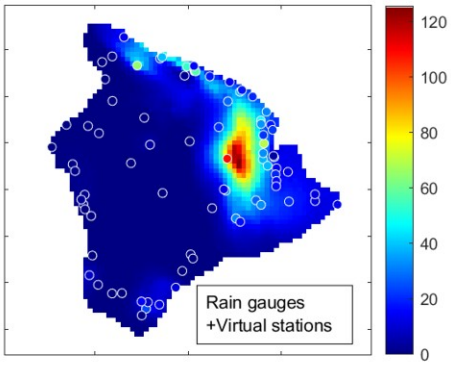



2018/04/08 - RainType:4
Rain gauges only
Rain gauges
+Virtual stations
2018/04/09 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/10 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/11 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations

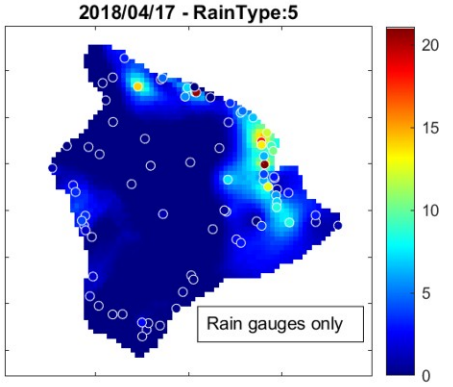

2018/04/12 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/13 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/14 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/15 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations

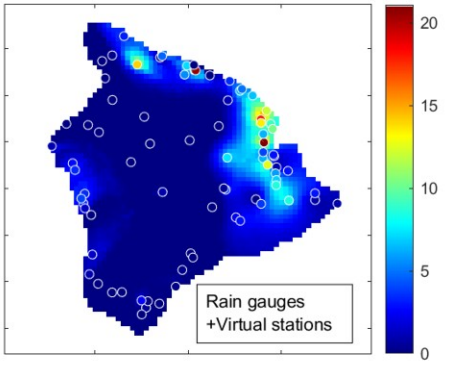
2018/04/16 - RainType:1



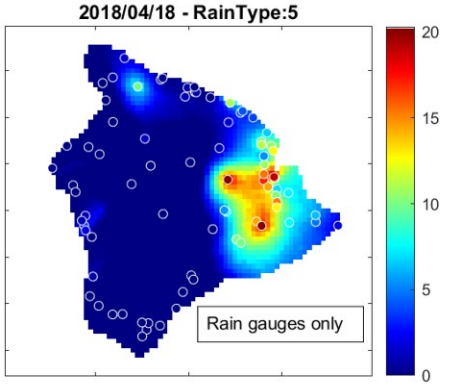


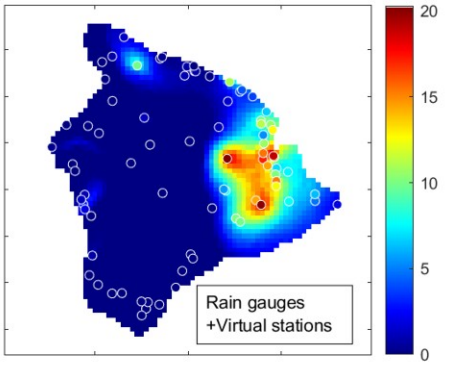
2018/04/17 - RainType:5



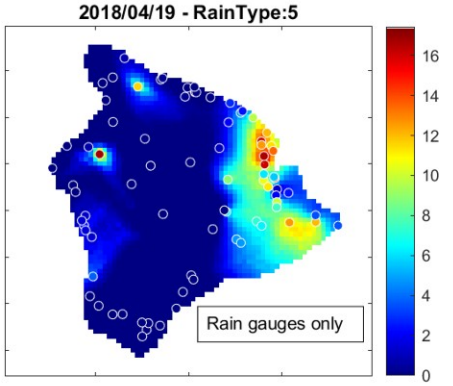


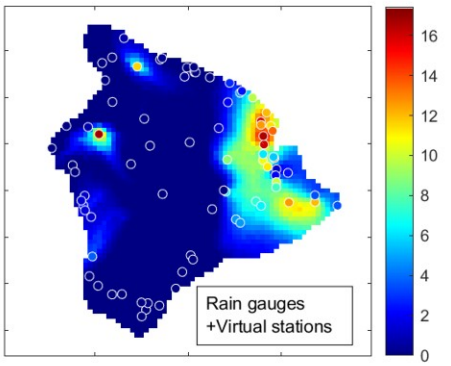
2018/04/18 - RainType:5

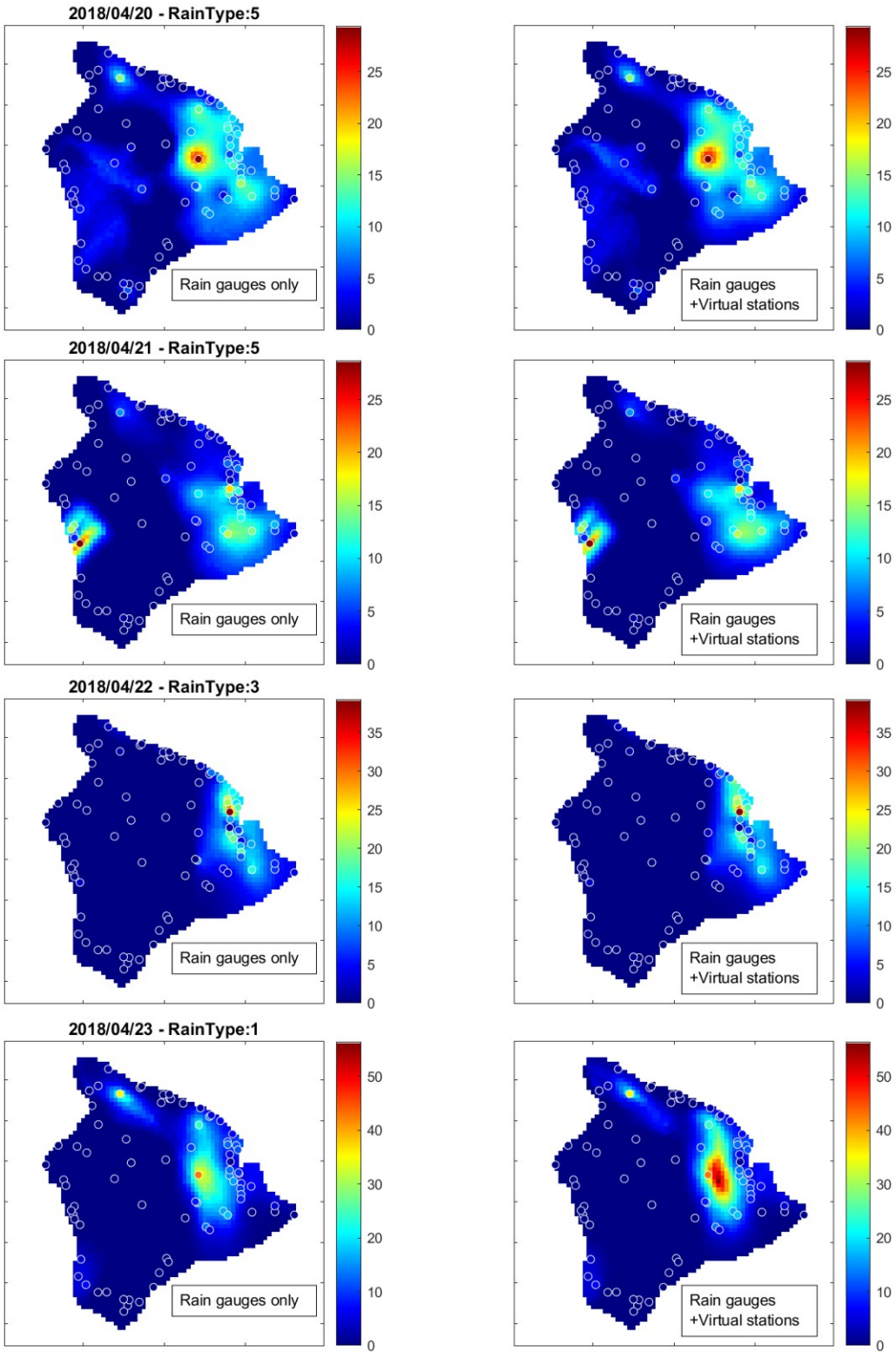


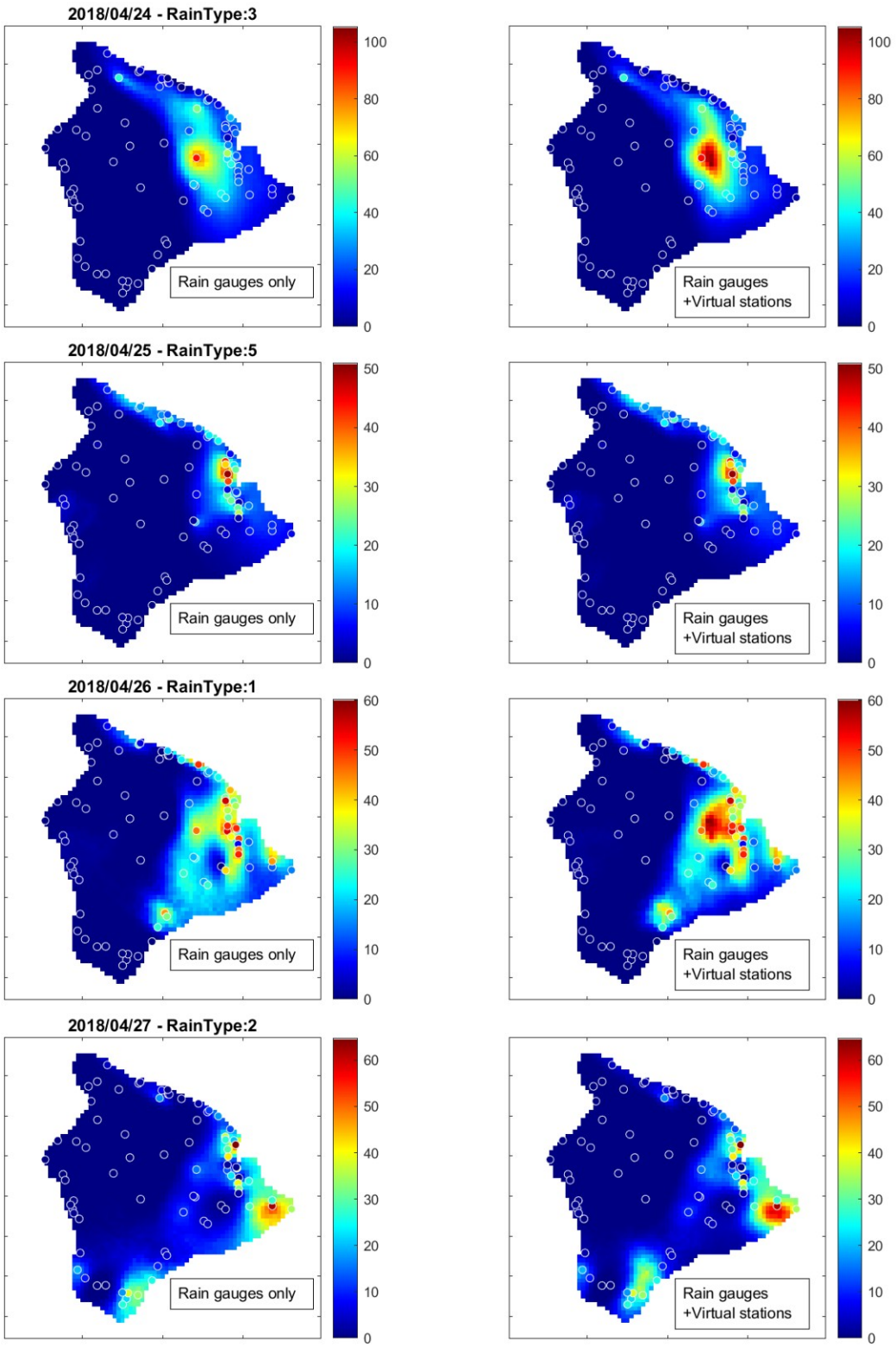


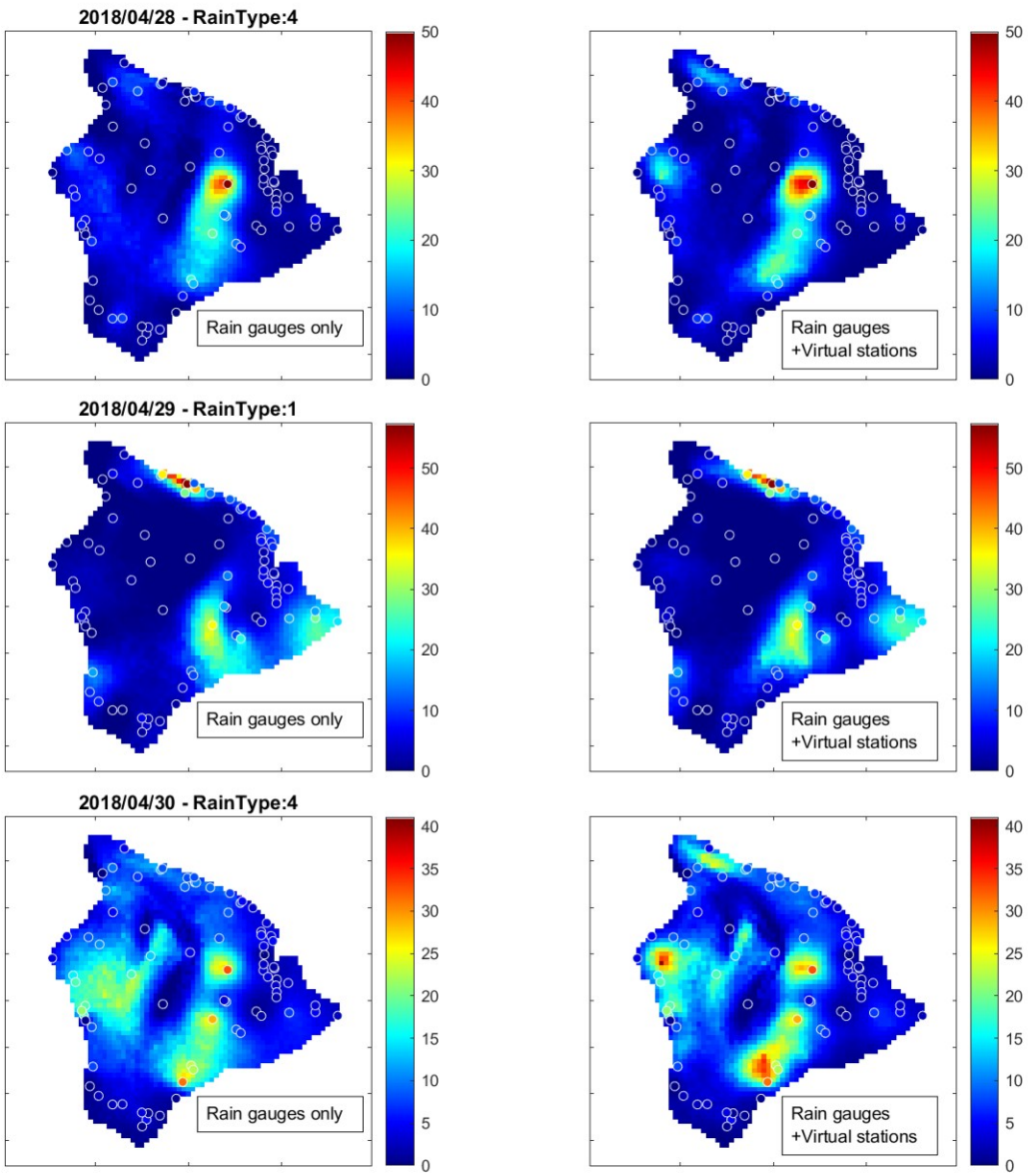
2018/04/19 - RainType:5





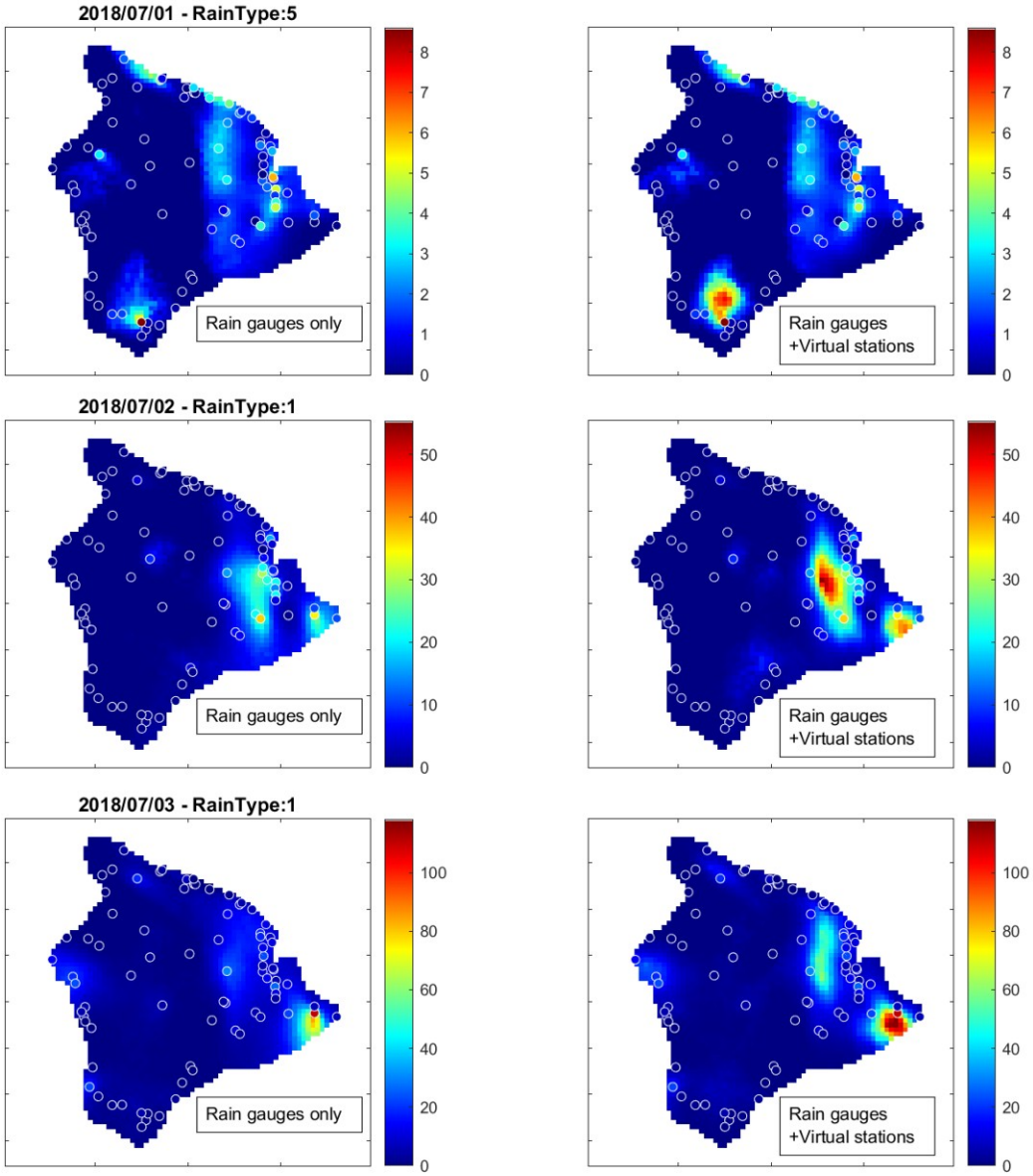

2018/04/20 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/04/21 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/04/22 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations
2018/04/23 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations

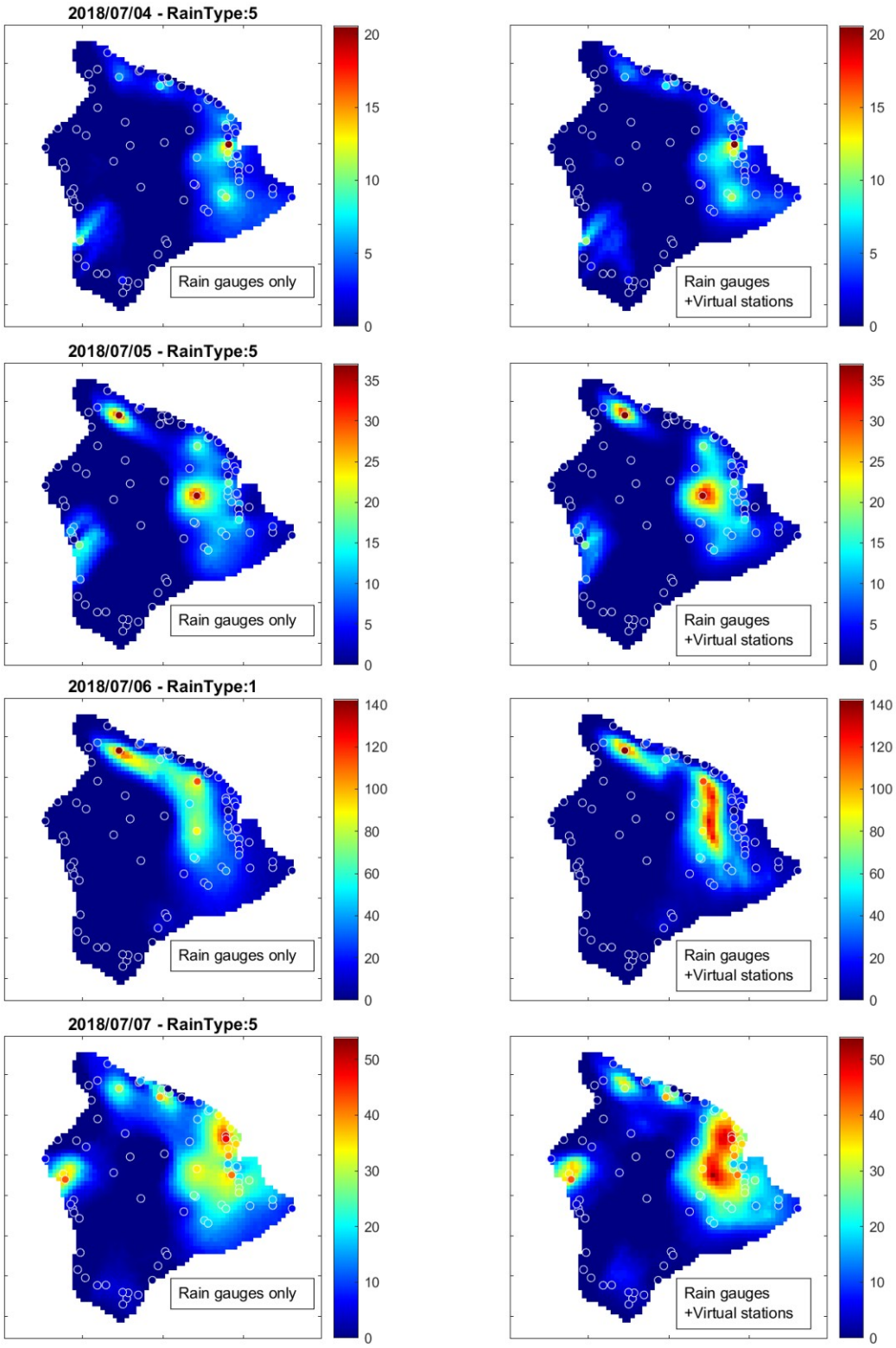

2018/04/24 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations
2018/04/25 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/04/26 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/27 - RainType:2
Rain gauges only
Rain gauges
+Virtual stations

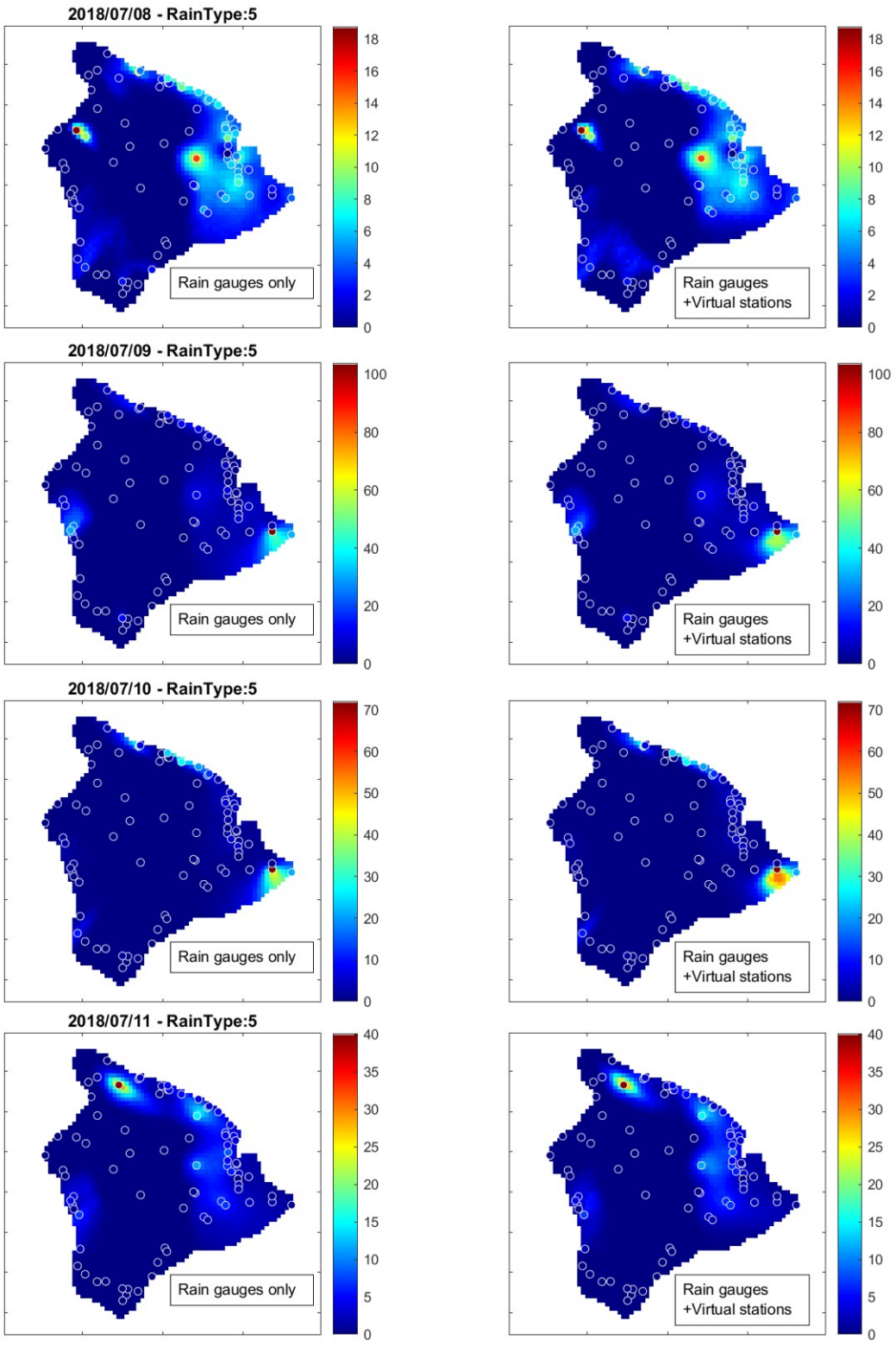

2018/04/28 - RainType:4
Rain gauges only
Rain gauges
+Virtual stations
2018/04/29 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/04/30 - RainType:4
Rain gauges only
Rain gauges
+Virtual stations

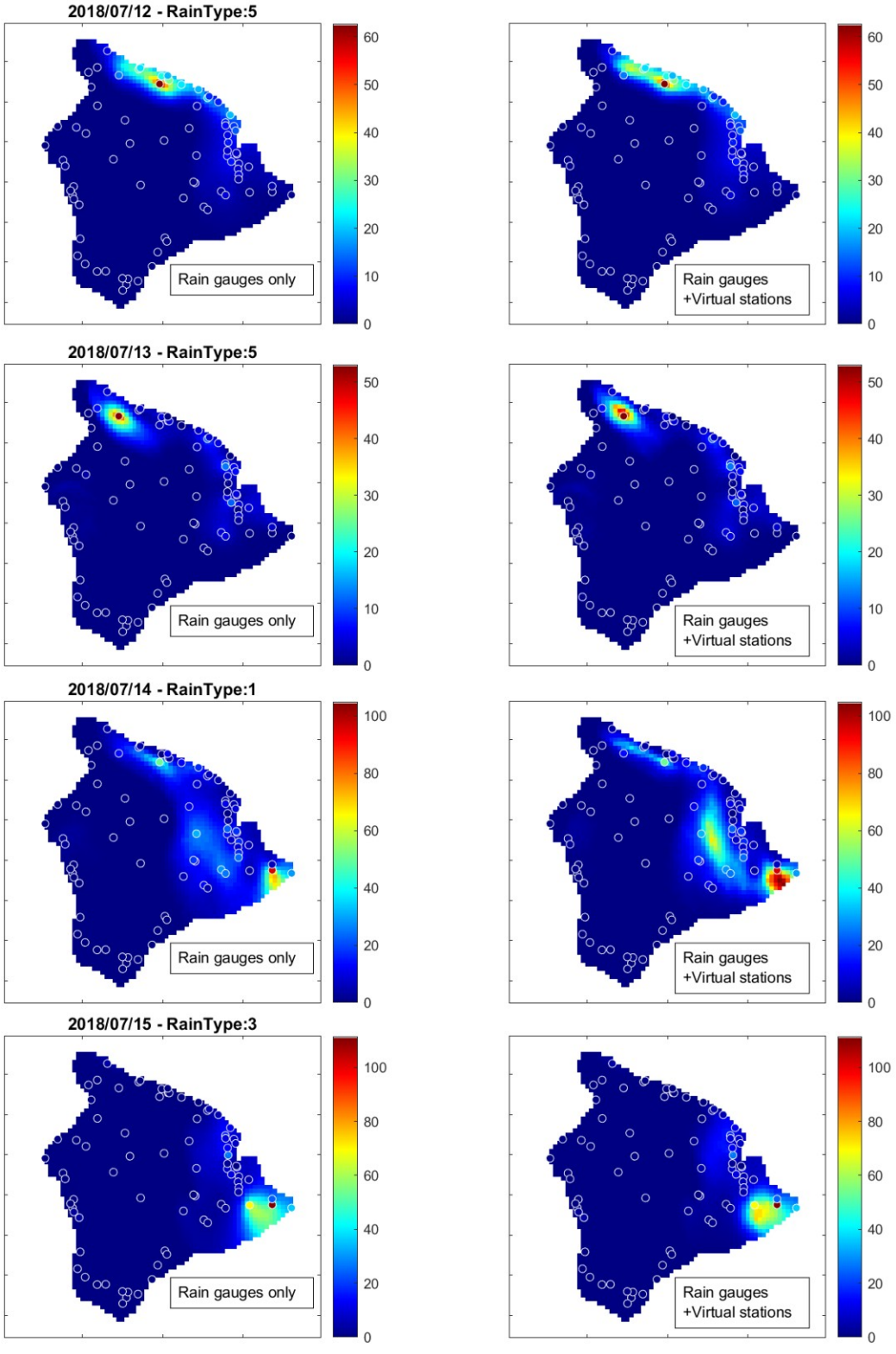
Supplementary Material 3:

Daily rainfall maps for the month of July 2018 obtained by stochastic simulations conditioned to rain gauges only (column 1) and conditioned to rain gauges and 200 virtual stations (column 2). The colored dots denote rain gauge observations and the background color is the rainfall map. For each day the rain type is given in addition to the date. Note that the color scale changes from day to day to accommodate the temporal variation of daily rainfall intensity.

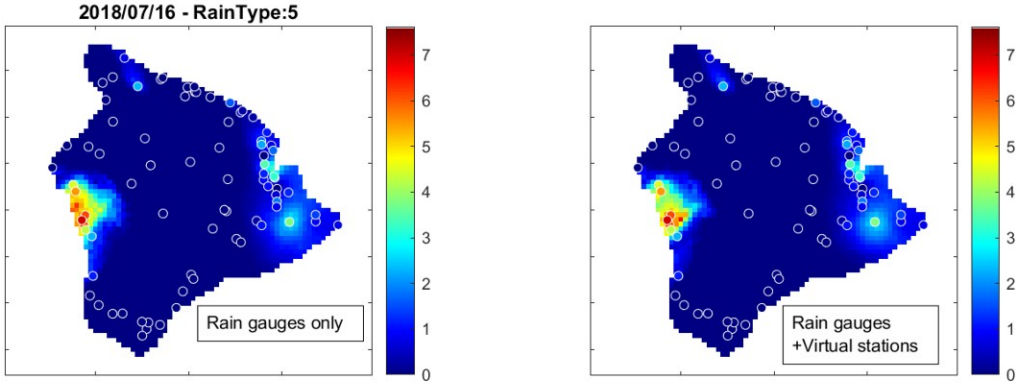



2018/07/04 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/05 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/06 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/07/07 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations

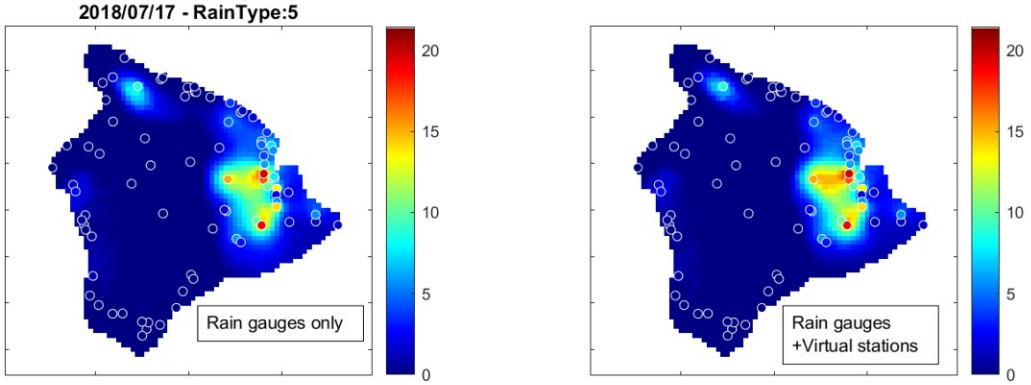

2018/07/08 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/09 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/10 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/11 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations


2018/07/12 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/13 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/14 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
2018/07/15 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations

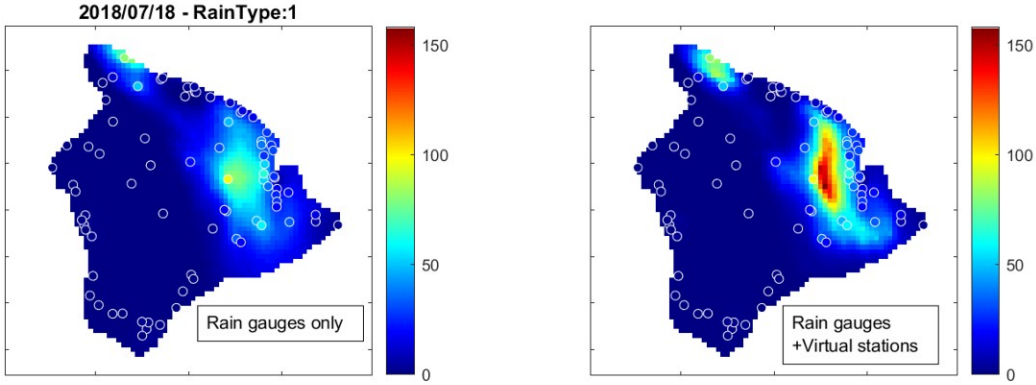
2018/07/16 - RainType:5



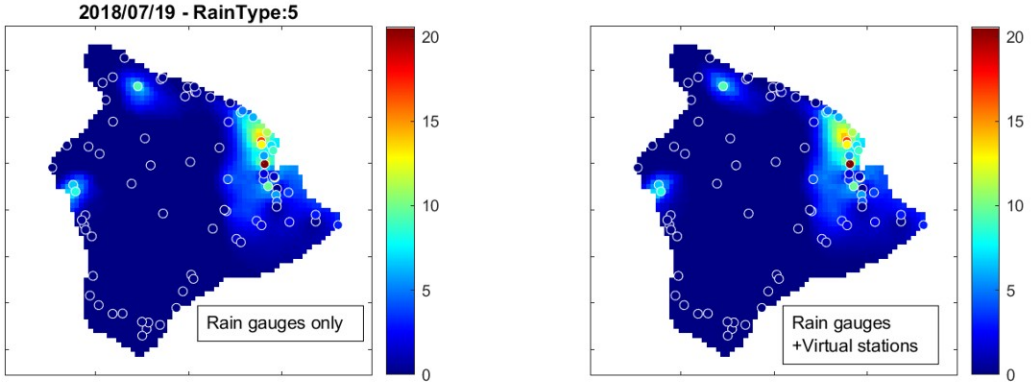
2018/07/17 - RainType:5



2018/07/18 - RainType:1



2018/07/19 - RainType:5



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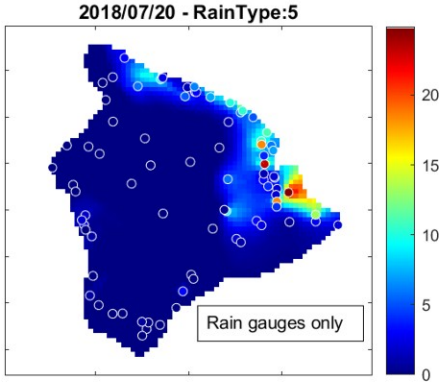
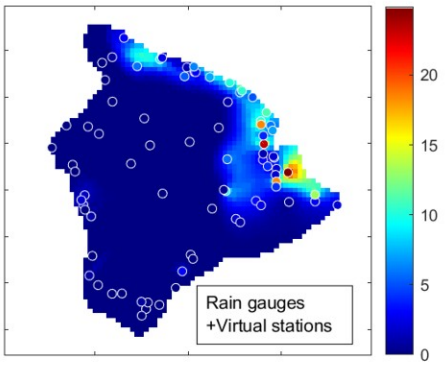
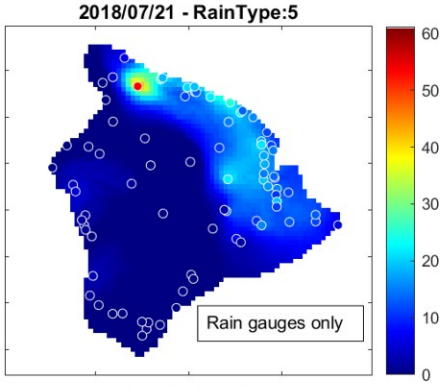
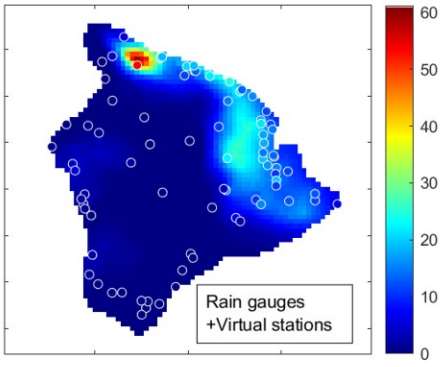




2018/07/21 - RainType:5





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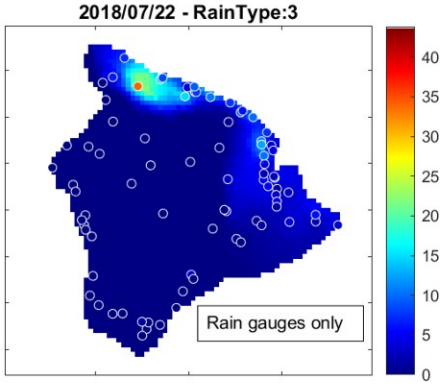
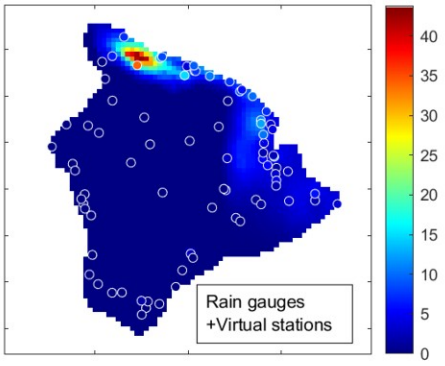
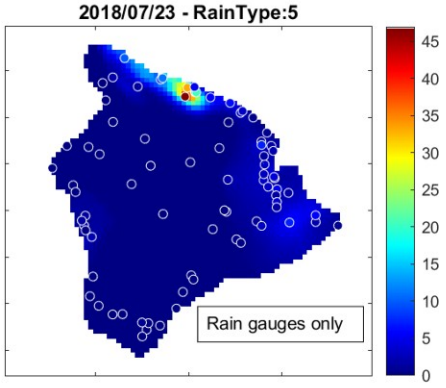
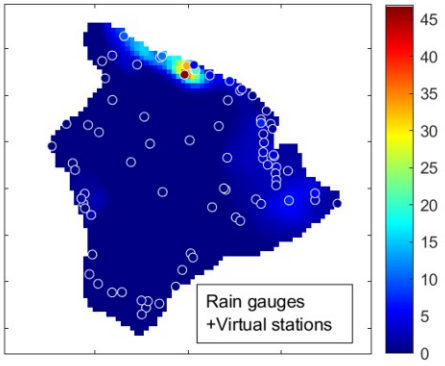
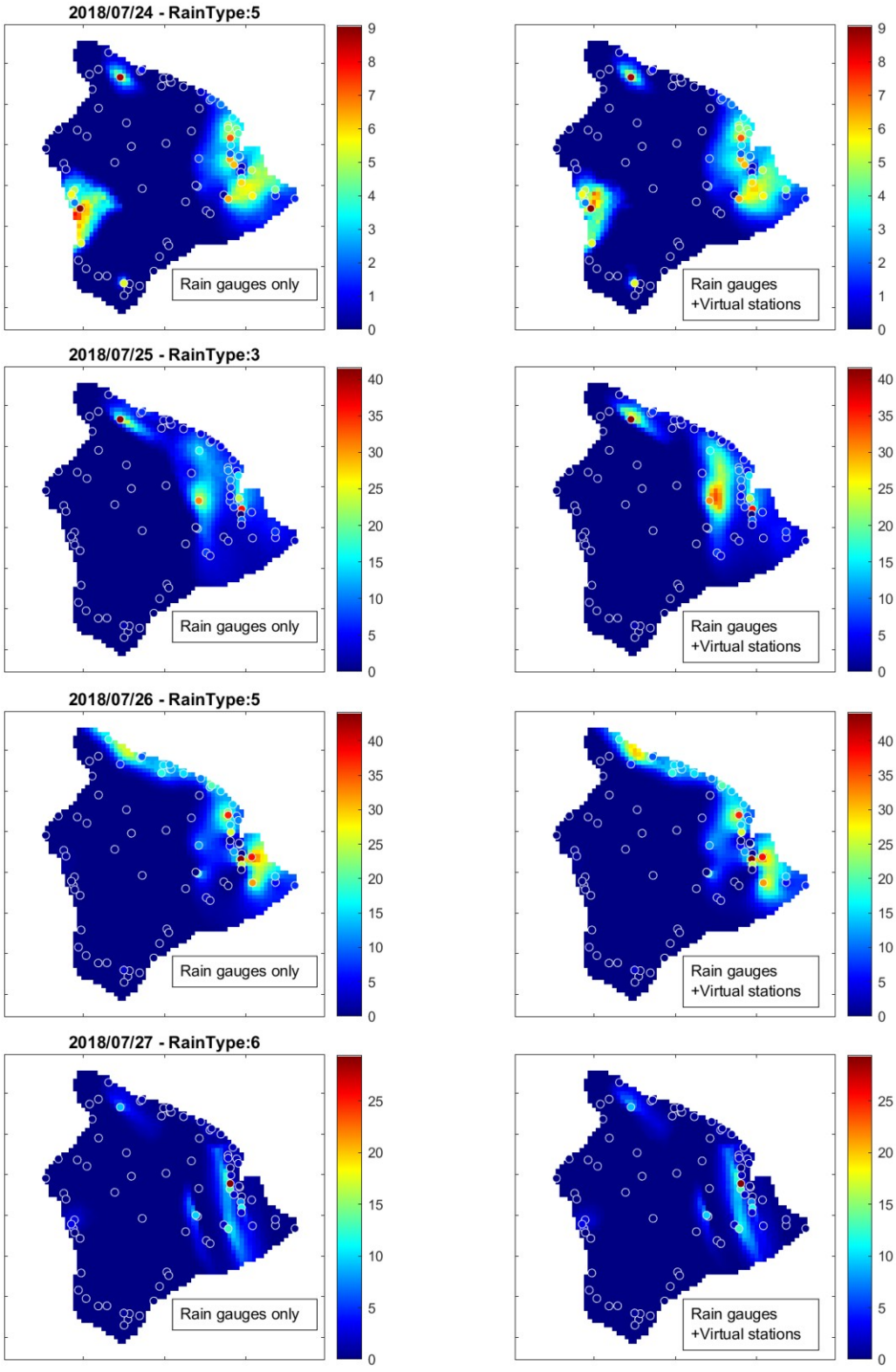




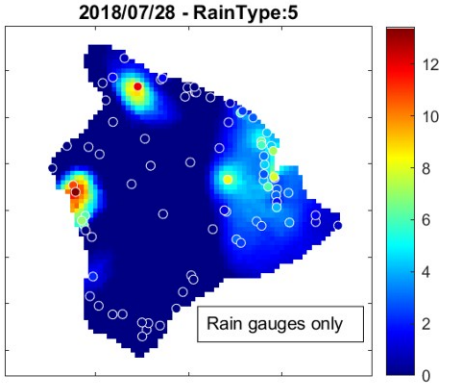
2018/07/23 - RainType:5

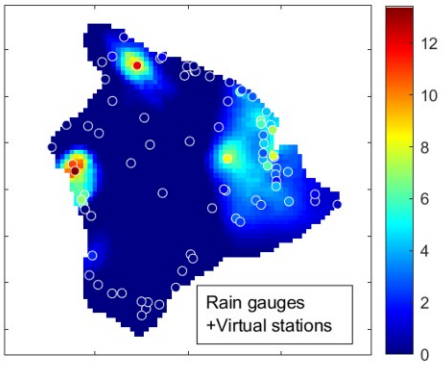




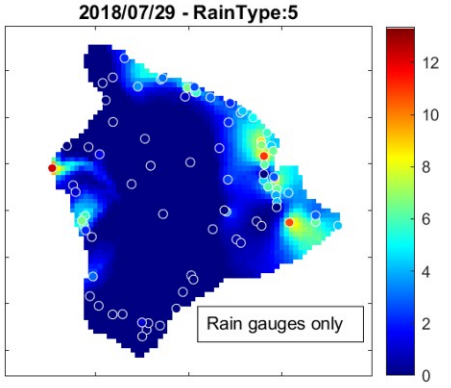

2018/07/24 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/25 - RainType:3
Rain gauges only
Rain gauges
+Virtual stations
2018/07/26 - RainType:5
Rain gauges only
Rain gauges
+Virtual stations
2018/07/27 - RainType:6
Rain gauges only
Rain gauges
+Virtual stations

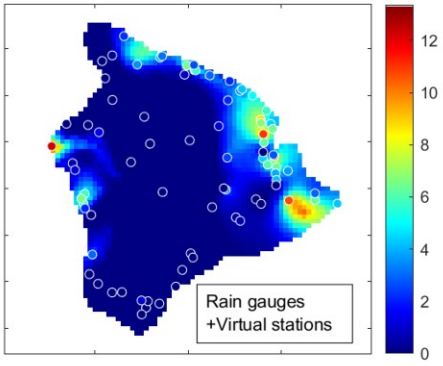
2018/07/28 - RainType:5



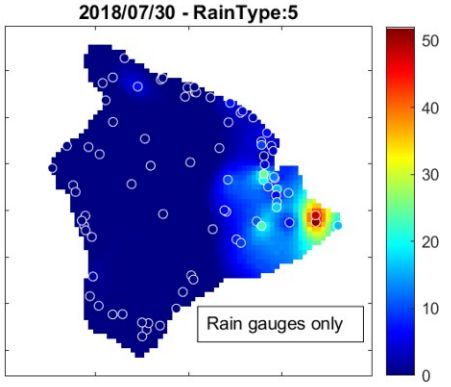


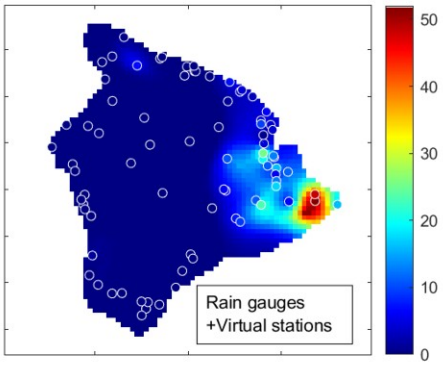
2018/07/29 - RainType:5



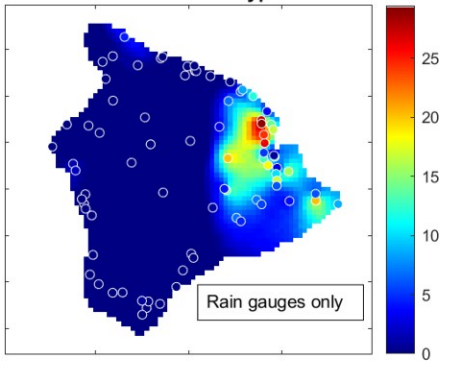


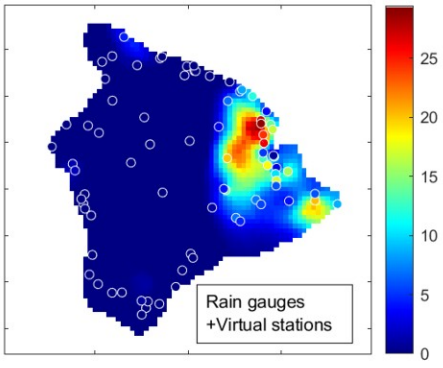
2018/07/30 - RainType:5





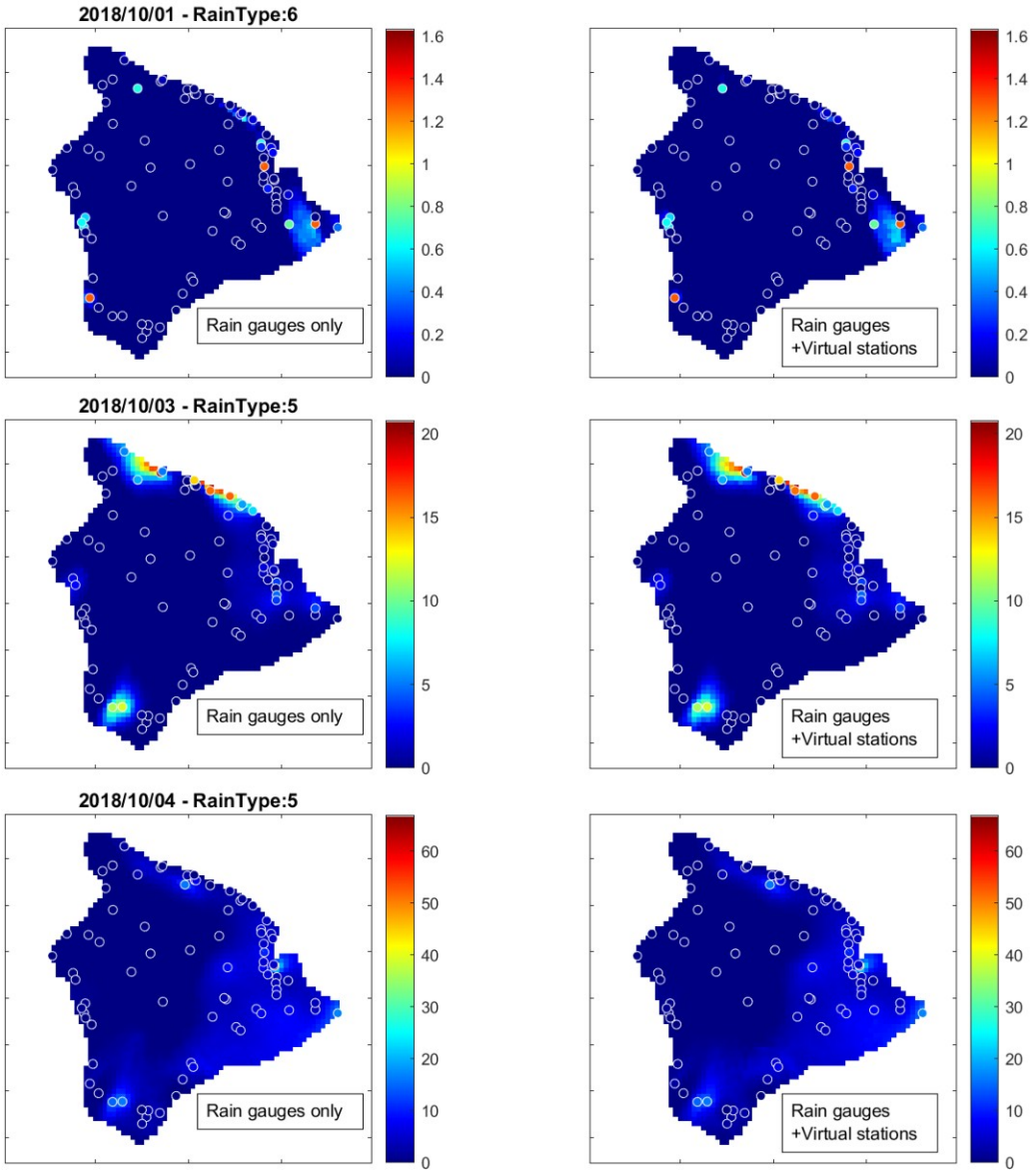
2018/07/31 - RainType:5



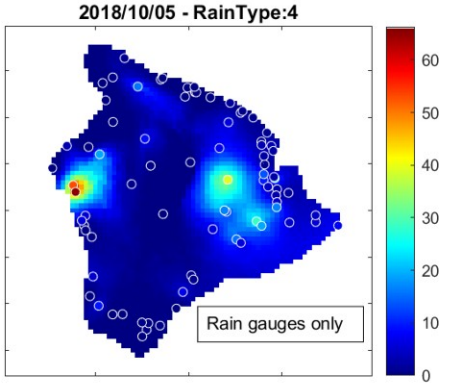


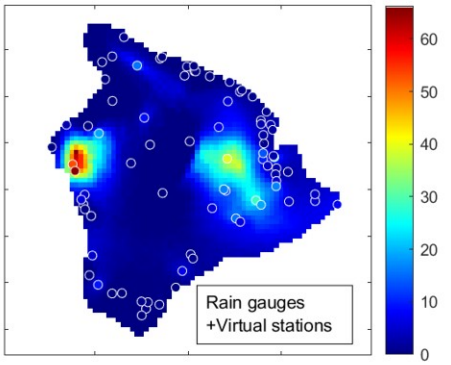
Supplementary Material 4:

Daily rainfall maps for the month of October 2018 obtained by stochastic simulations conditioned to rain gauges only (column 1) and conditioned to rain gauges and 200 virtual stations (column 2). The colored dots denote rain gauge observations and the background color is the rainfall map. For each day the rain type is given in addition to the date. Note that the color scale changes from day to day to accommodate the temporal variation of daily rainfall intensity, and that October 2nd is not displayed here because it was dry throughout the island.

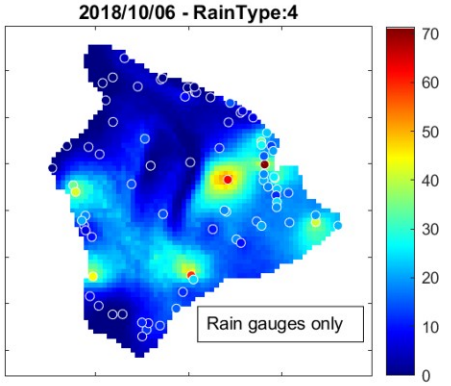


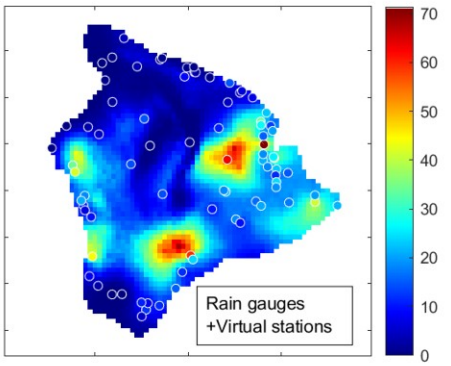
2018/10/05 - RainType:4



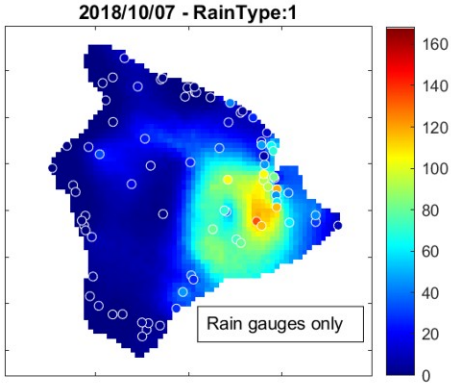


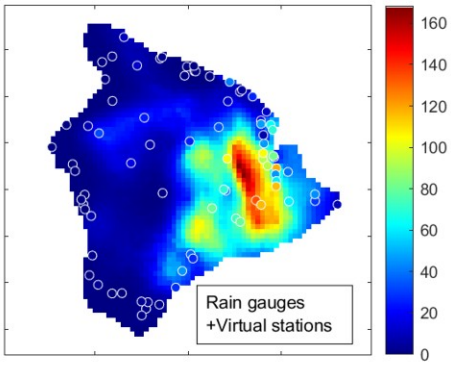
2018/10/06 - RainType:4



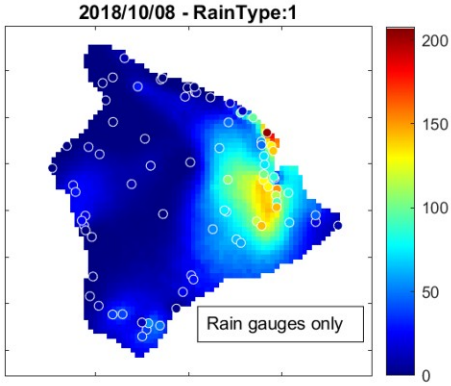


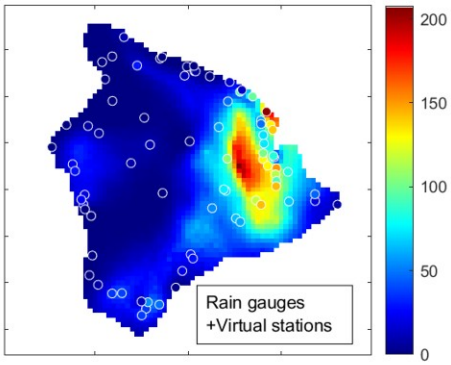
2018/10/07 - RainType:1



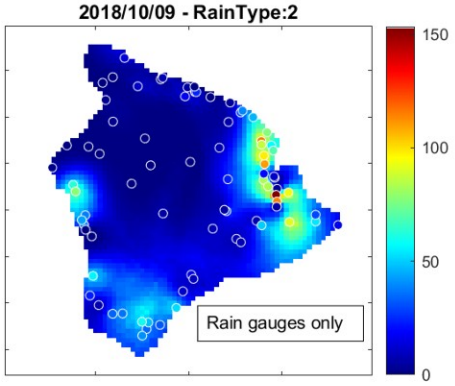


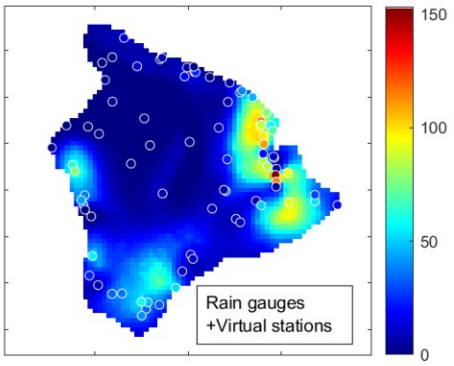
2018/10/08 - RainType:1



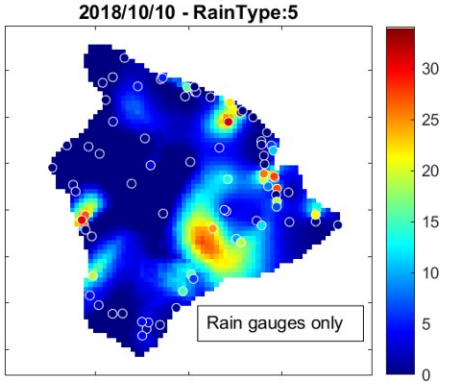


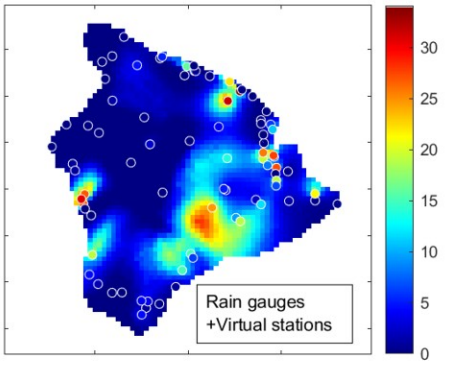
2018/10/09 - RainType:2



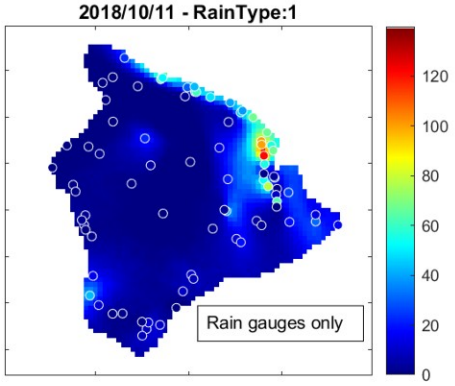


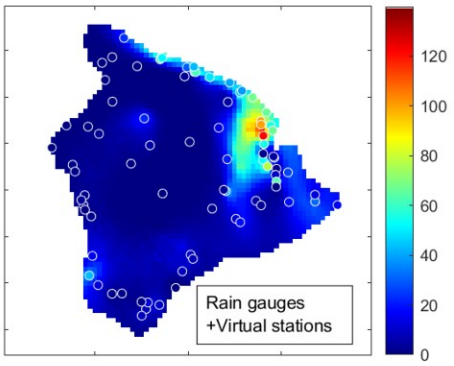
2018/10/10 - RainType:5



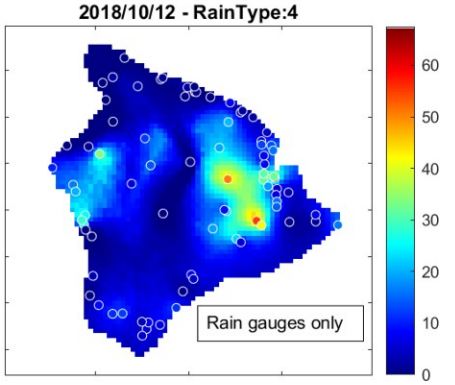


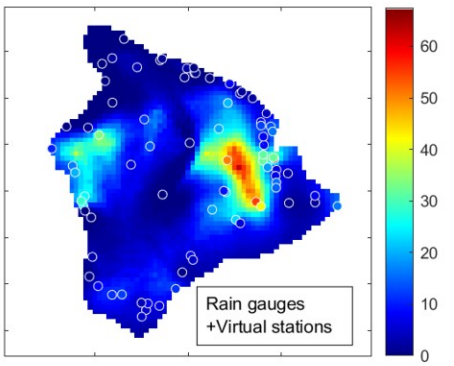
2018/10/11 - RainType:1



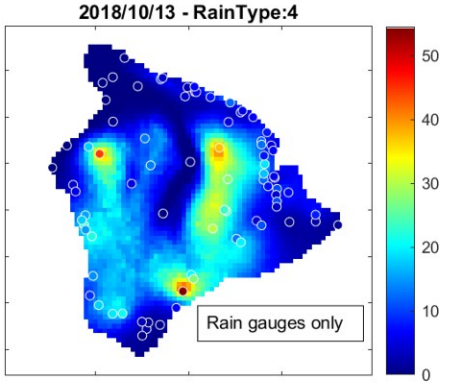


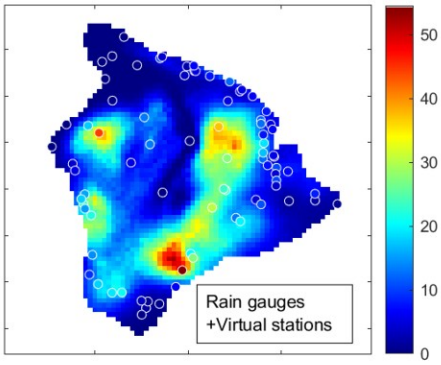
2018/10/12 - RainType:4



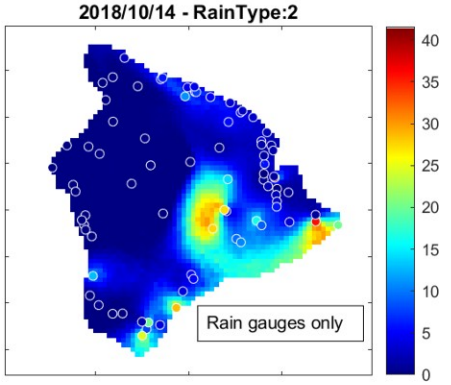


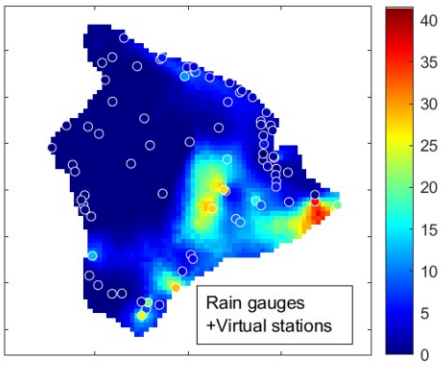
2018/10/13 - RainType:4



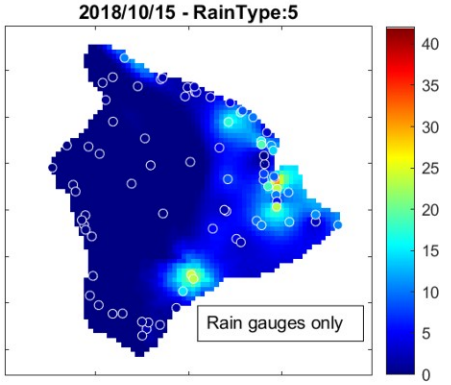


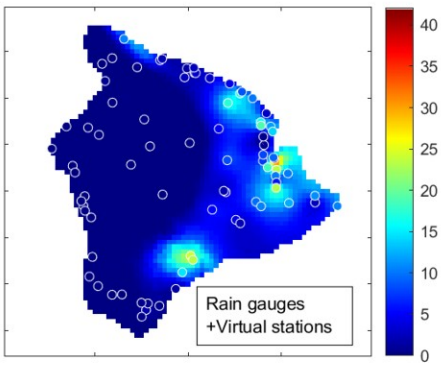
2018/10/14 - RainType:2



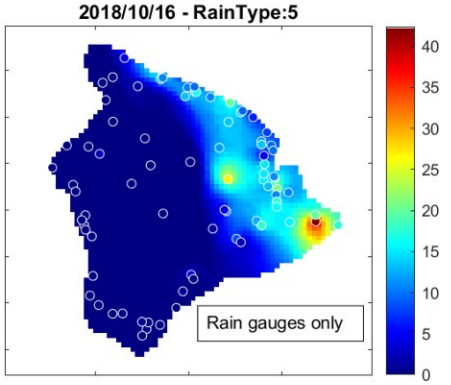


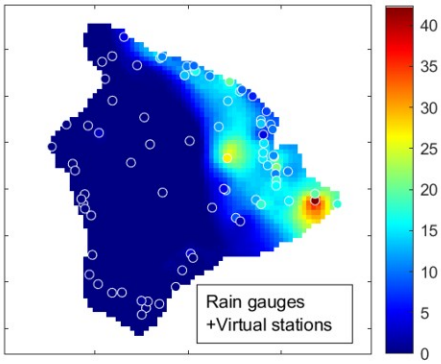
2018/10/15 - RainType:5



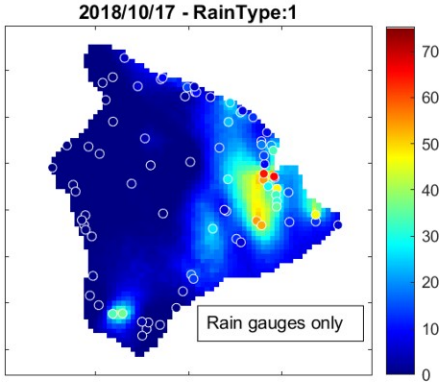


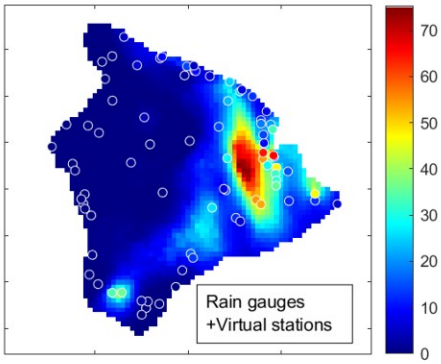
2018/10/16 - RainType:5



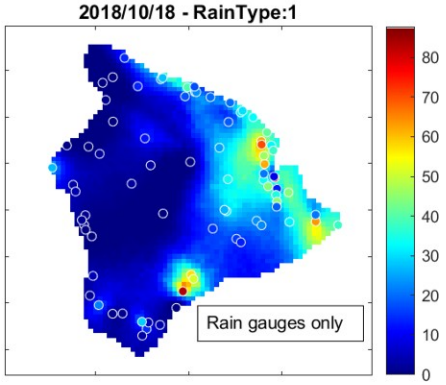


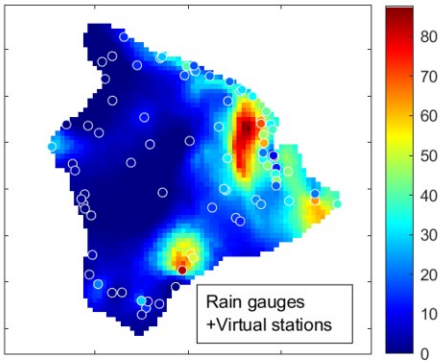
2018/10/17 - RainType:1



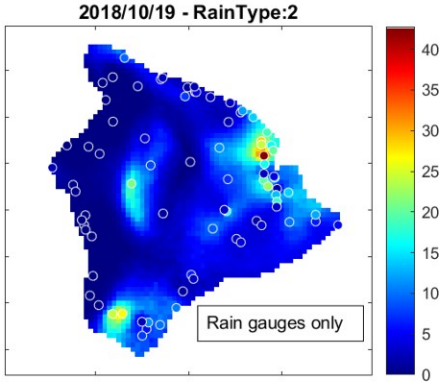


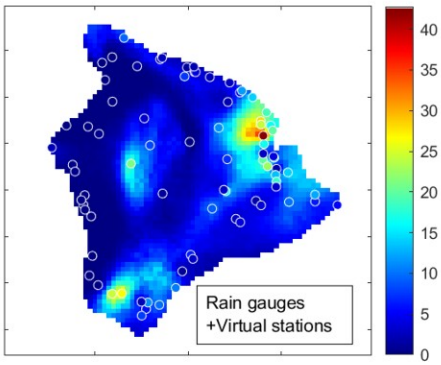
2018/10/18 - RainType:1



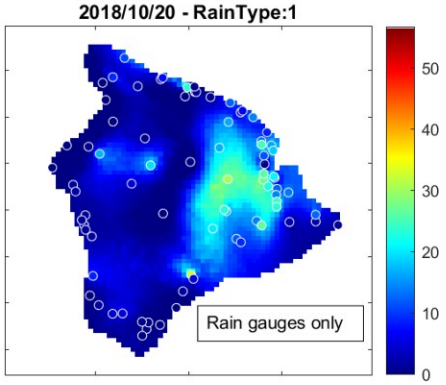


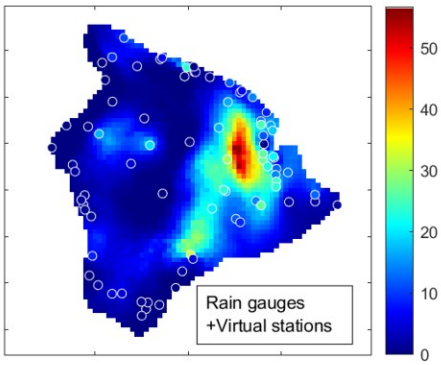
2018/10/19 - RainType:2



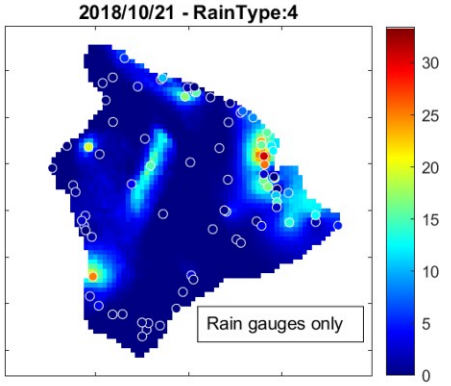


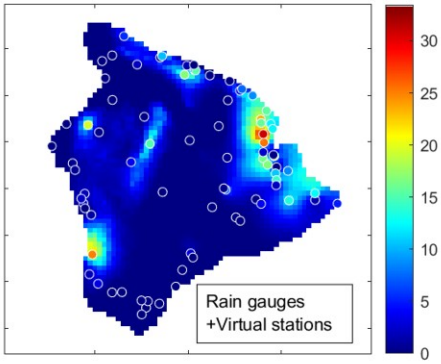
2018/10/20 - RainType:1



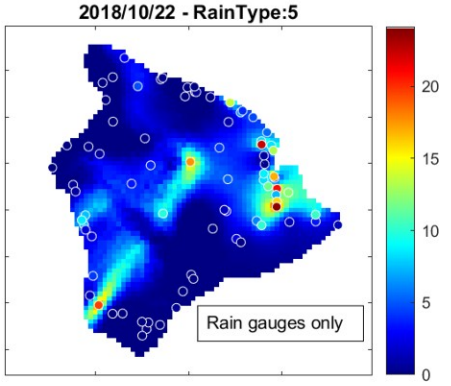


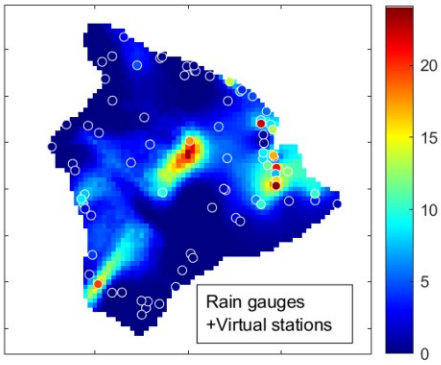
2018/10/21 - RainType:4



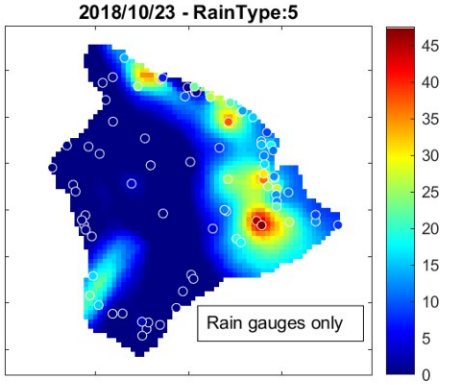


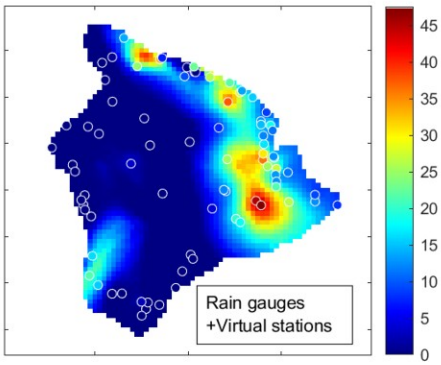
2018/10/22 - RainType:5



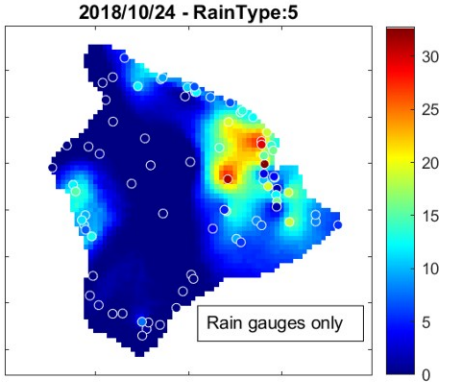


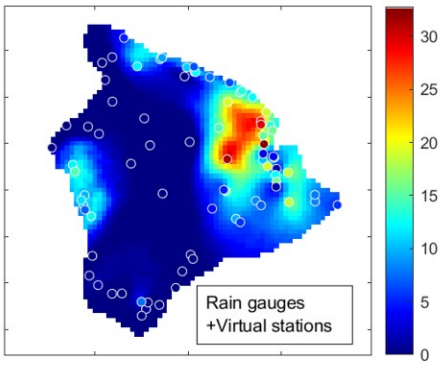
2018/10/23 - RainType:5



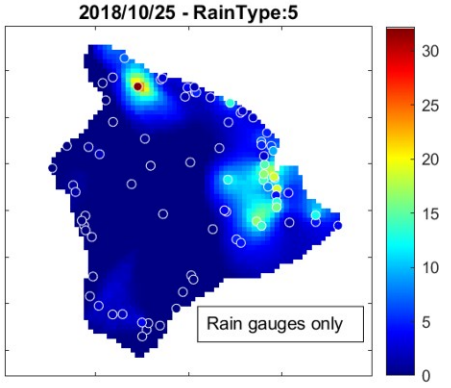


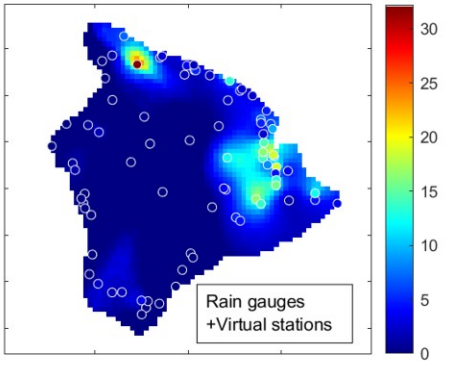
2018/10/24 - RainType:5



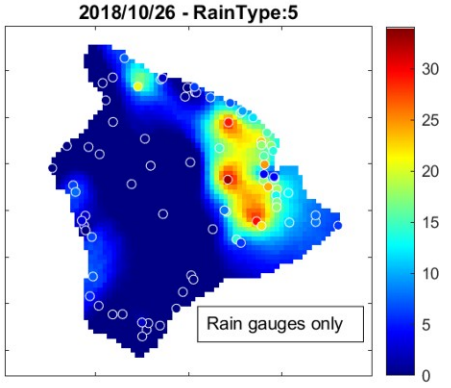


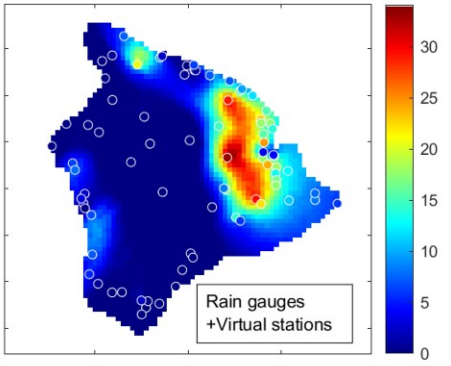
2018/10/25 - RainType:5



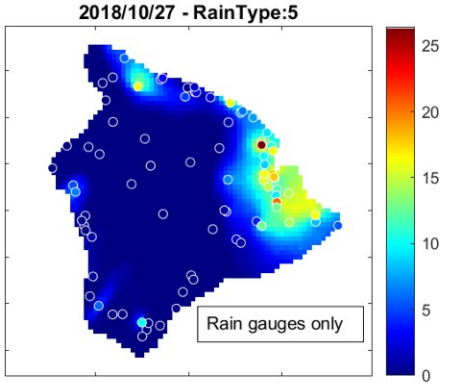


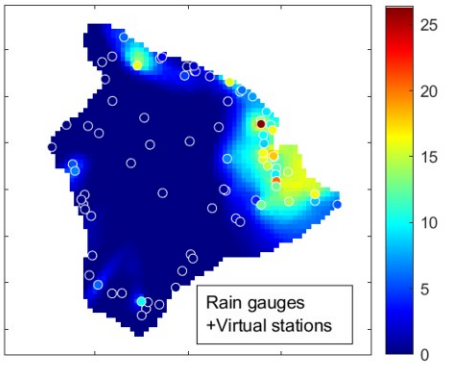
2018/10/26 - RainType:5



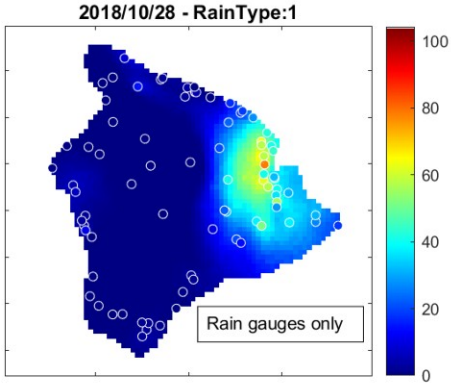


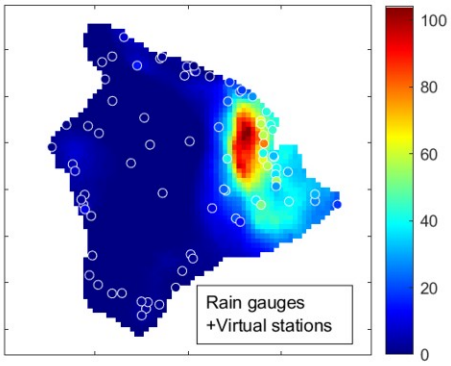
2018/10/27 - RainType:5

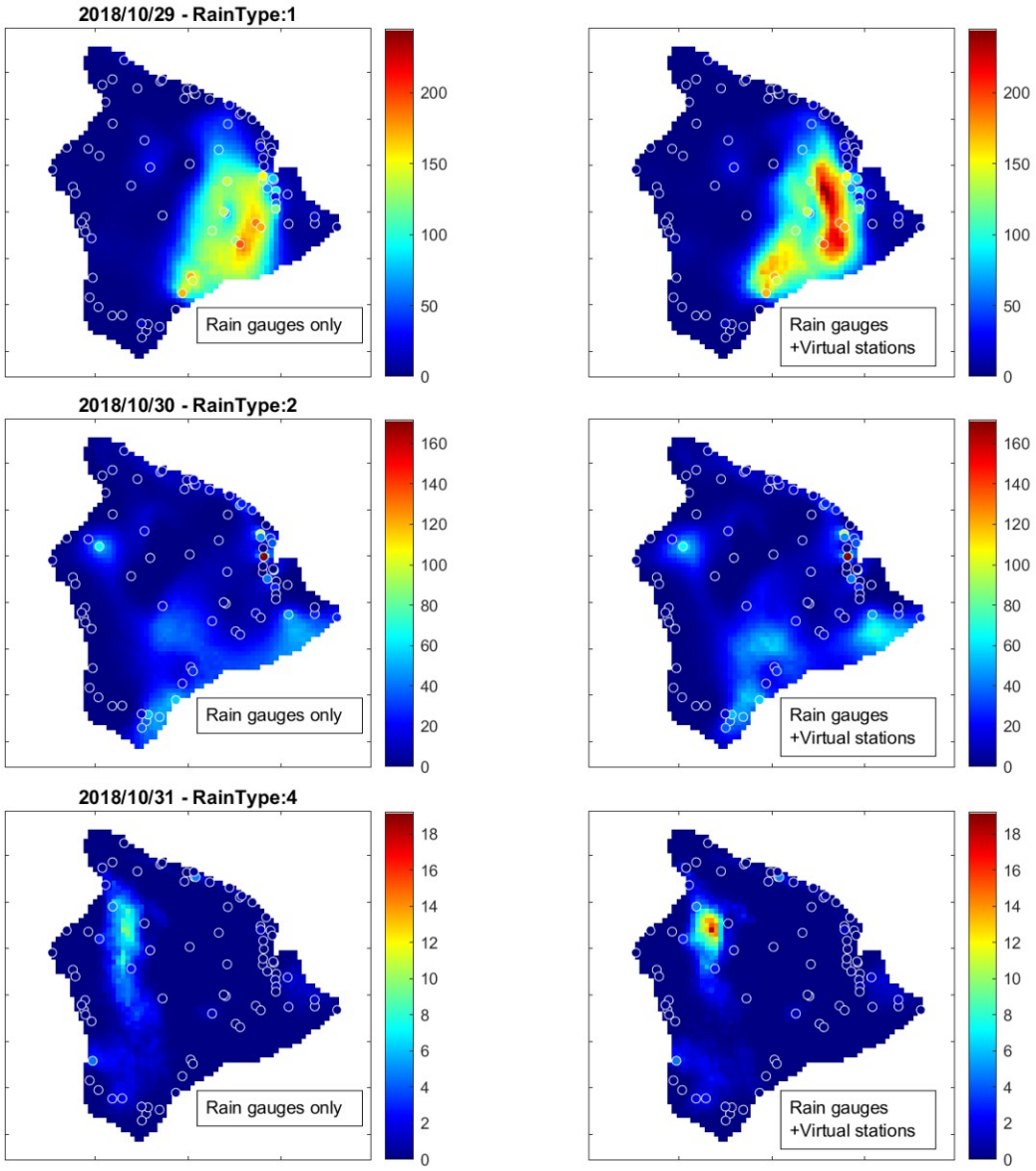




2018/10/28 - RainType:1






2018/10/29 - RainType:1
Rain gauges only
Rain gauges
+Virtual stations
0
50
100
150
200
2018/10/30 - RainType:2
Rain gauges only
Rain gauges
+Virtual stations
0
20
40
60
80
100
120
140
160
2018/10/31 - RainType:4
Rain gauges only
Rain gauges
+Virtual stations
0
2
4
6
8
10
12
14
16
18