Table S1. Temperature program for pyrolysis experiments

Step	Duration* (minutes)	Upper limit(°C)	Lower limit (°C)	Chamber (°C) **	Circulation (°C) **
1	90	110	105	104.37	68.30
2	105	150	145	147.35	108.84
3	120	180	175	177.32	139.43
4	75	220	215	216.56	178.82
5	90	280	275	275.26	249.52
6	75	320	315	315.80	289.70

* Total pyrolysis time: 555 min
** Average temperature after a heating period

Table S2. Liquid fraction yields (wt-%)

	Total	Front	Back	Condenser
Step 1	0.5 %	0.3 %	0.3 %	0.0 %
Step 2	2.6 %	0.1 %	2.5 %	0.0 %
Step 3	6.5 %	0.0 %	6.4 %	0.0 %
Step 4	12.7 %	0.0 %	4.8 %	7.9 %
Step 5*	75.6 %	1.4 %	5.9 %	68.2 %
Step 6	3.9 %	0.6 %	3.2 %	0.2 %

* The oil from this step, providing the largest liquid yield, was analyzed in this study

Figure S1. Measured negative ESI FT-ICR MS spectra for all oil samples

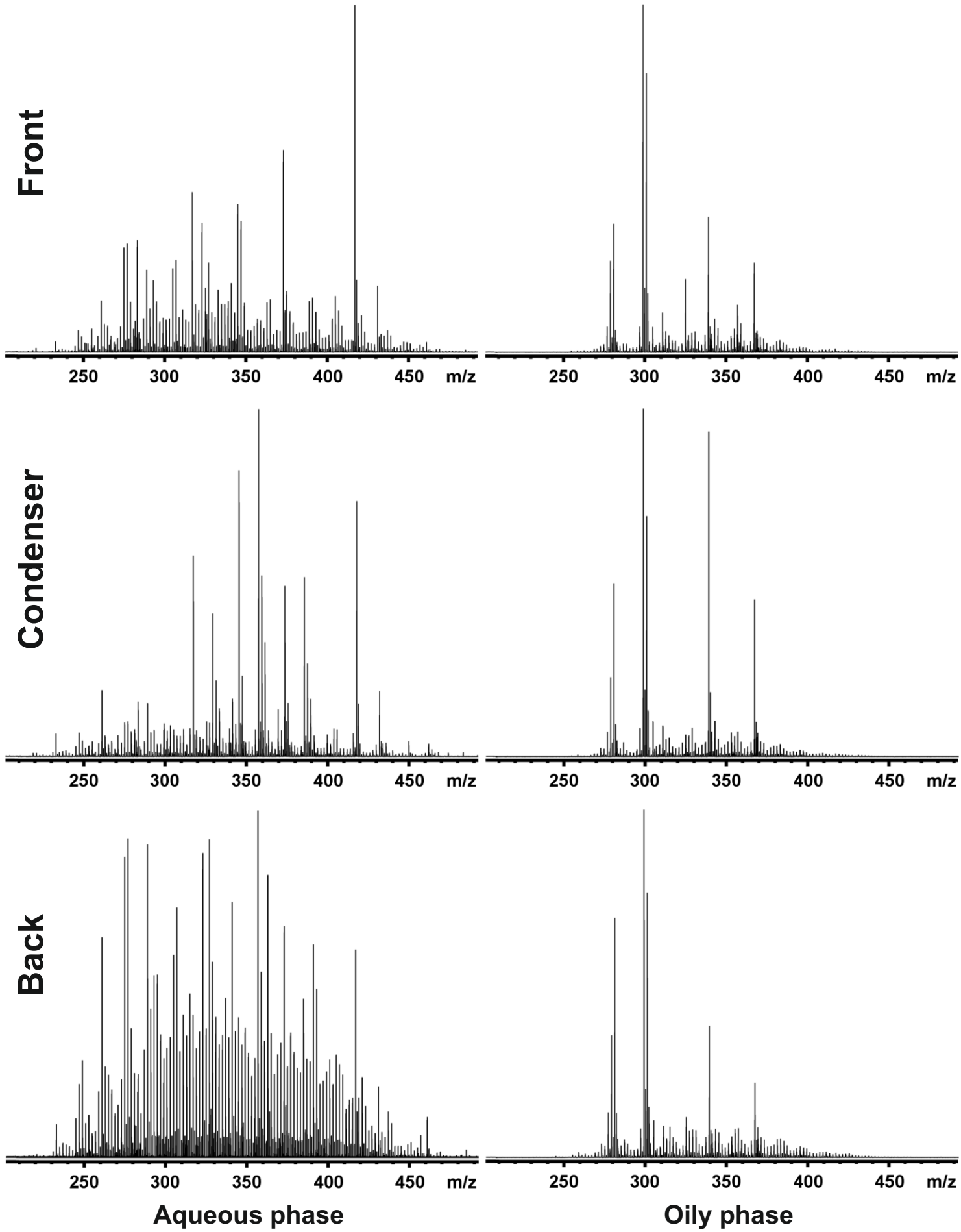

Figure S2. Relative abundances of the observed O-class compounds

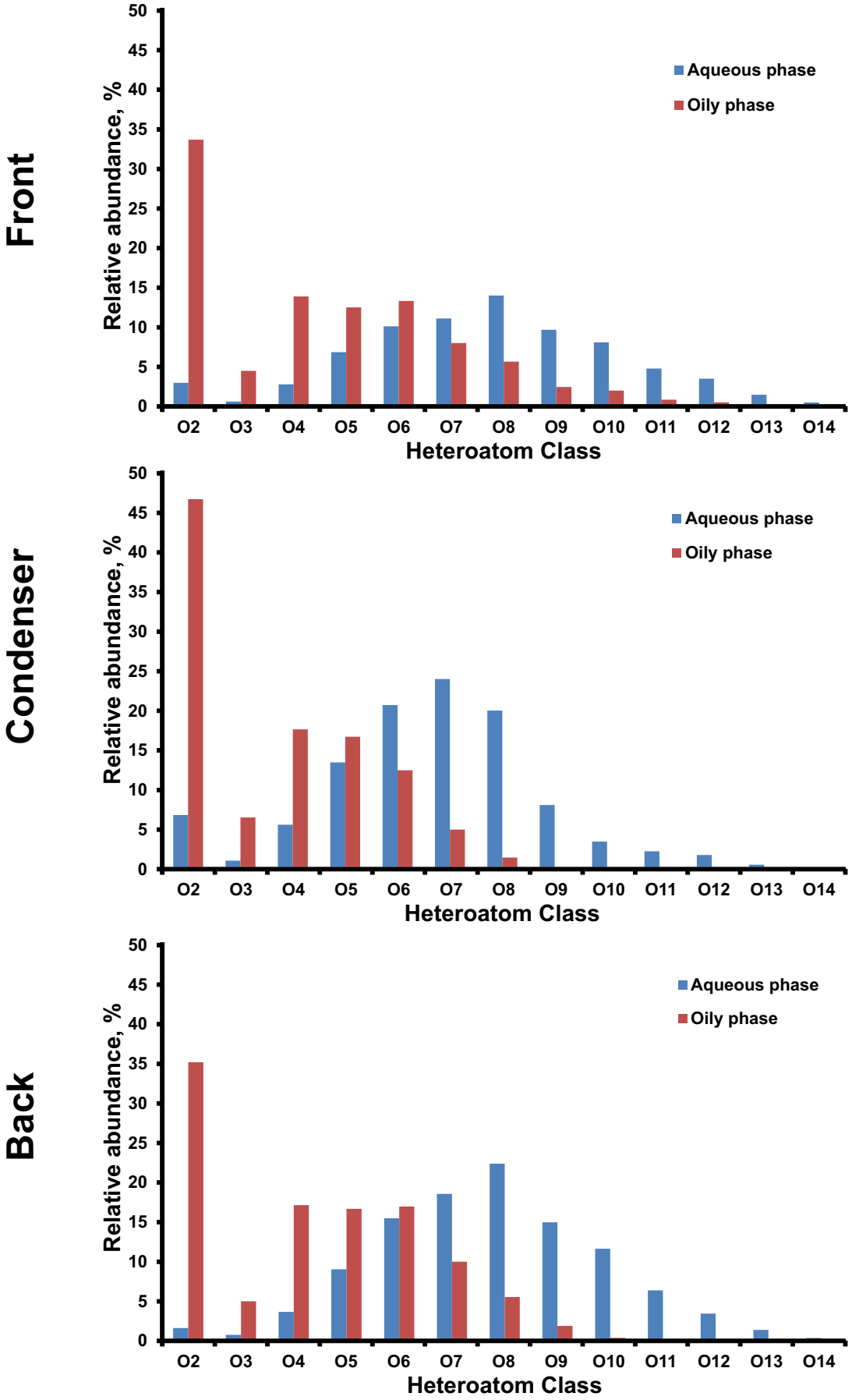
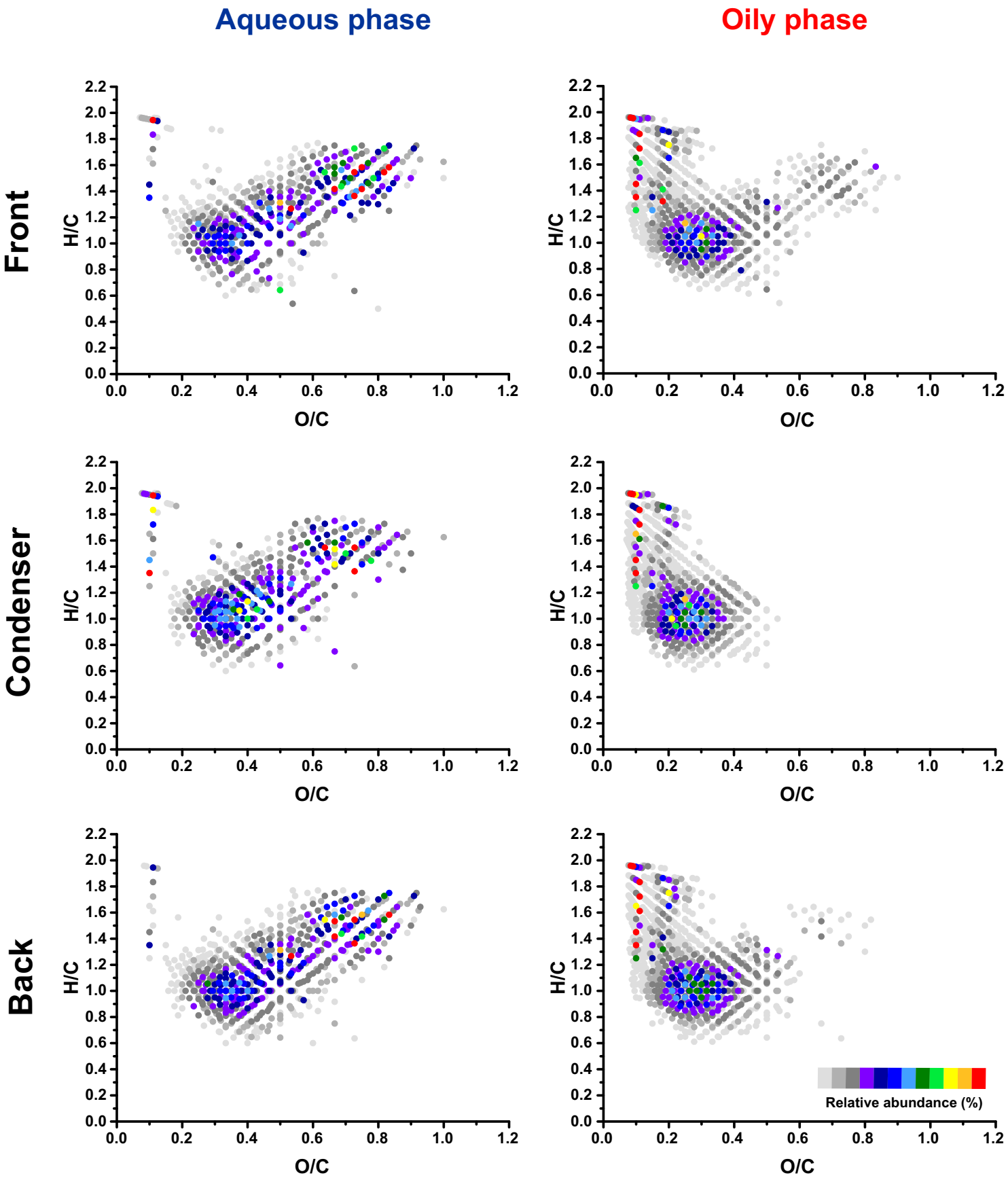
Figure S3. Color-mapped van Krevelen diagrams of the observed O-class compounds for all oil samples