
GENERALIZATION OF NAVIGATION MEMORY IN HONEYBEES

SUPPLEMENT DATA SHEET 03: CIRCLE STATISTICS

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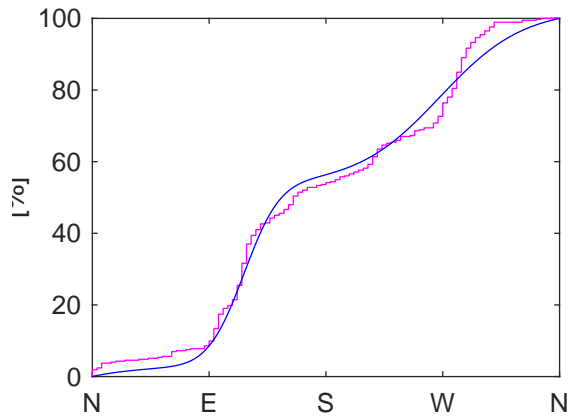
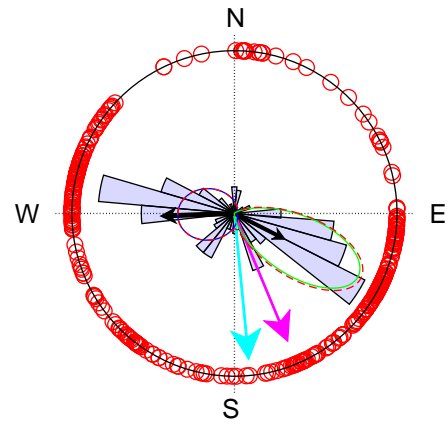
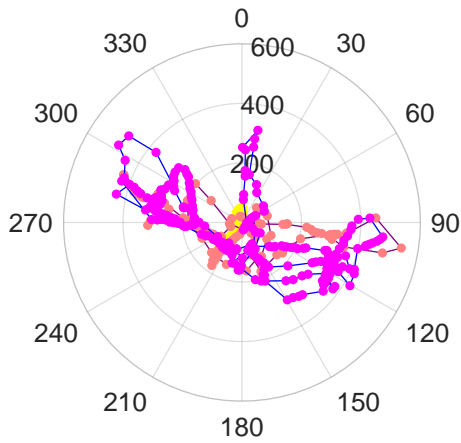
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14 February 2023

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*corresponding author

Bee A01: angular statistics and path



n=373, 3 parts

$p_{\text{Rayleigh-NU}} = 6.4e-7$

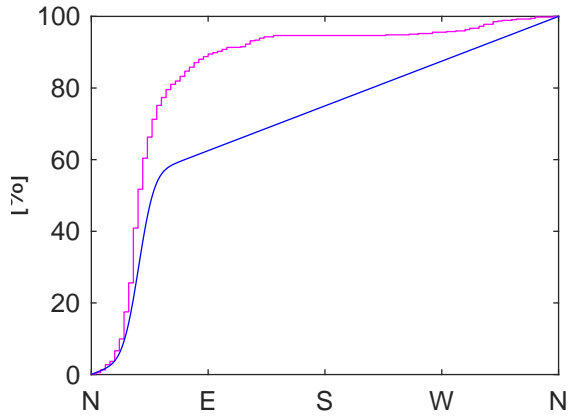
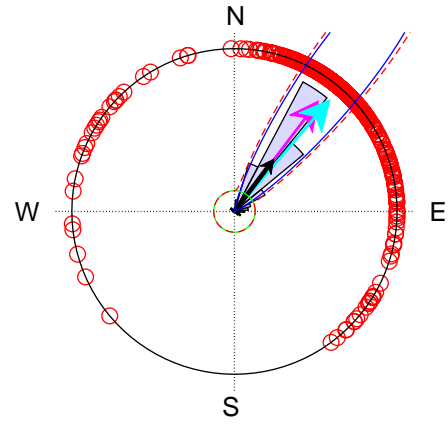
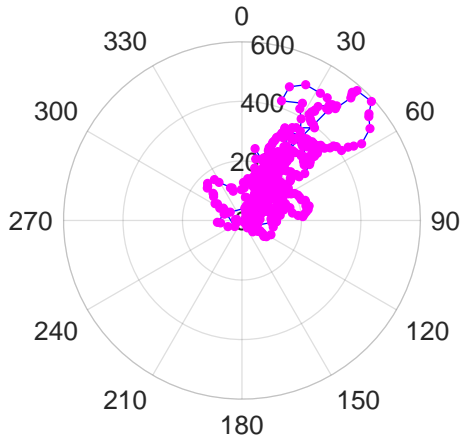
Best models= **M5B (100%)**

Best params: $\phi_1=268^\circ, \kappa_1=1.52$

$\lambda=0.57, \phi_2=117^\circ, \kappa_2=7.41$

$p_{\text{KS}}=0.0335$

Bee A02: angular statistics and path



n=543, 1 parts

$p_{\text{Rayleigh-NU}} = 6.9\text{e-}234$

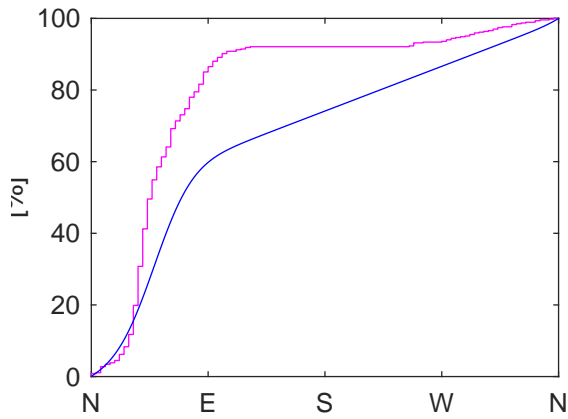
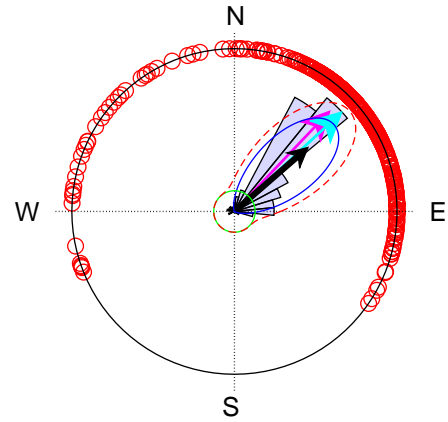
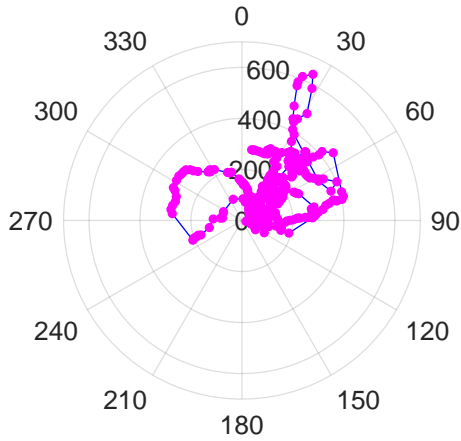
Best models= **M2B (100%)**

Best params: $\phi_1=37^\circ, \kappa_1=37.3$

$\lambda=0.5, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=3.19\text{e-}34$

Bee A03: angular statistics and path



n=468, 1 parts

$p_{\text{Rayleigh-NU}} = 3\text{e-}179$

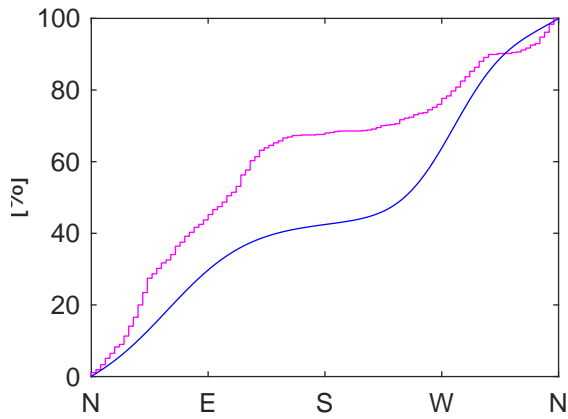
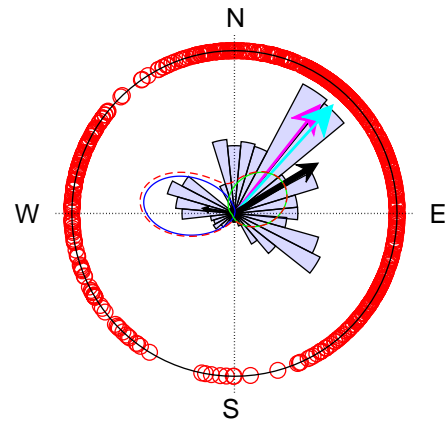
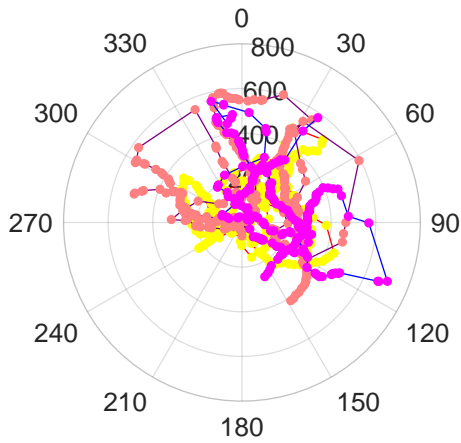
Best models= M2C (100%)

Best params: $\phi_1=49^\circ$, $\kappa_1=6.74$

$\lambda=0.75$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=6.64\text{e-}31$

Bee A04: angular statistics and path



$n=725$, 3 parts

$p_{\text{Rayleigh-NU}} = 7.1e-50$

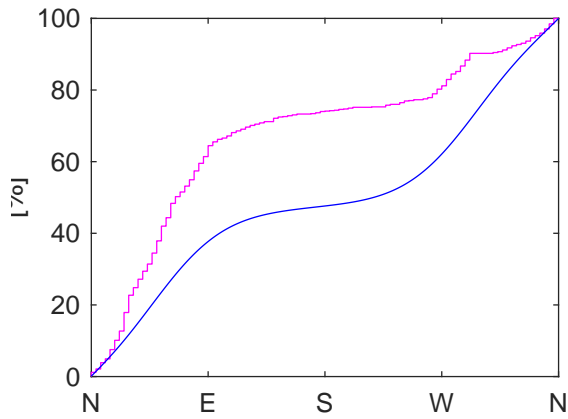
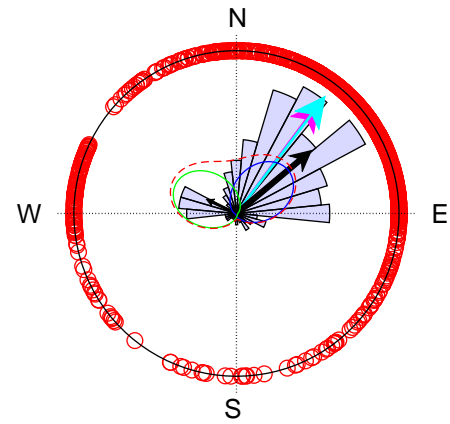
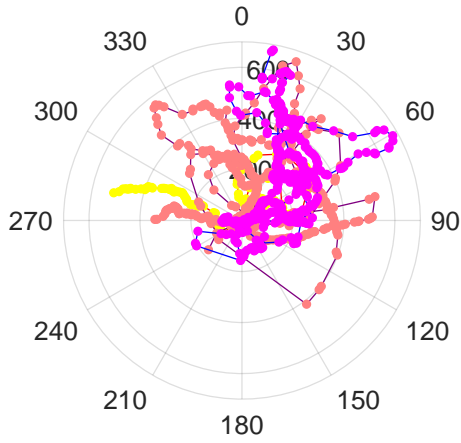
Best models= **M5B (100%)**

Best params: $\phi_1=279^\circ$, $\kappa_1=3.41$

$\lambda=0.25$, $\phi_2=59^\circ$, $\kappa_2=1.54$

$p_{\text{KS}}=8.47e-44$

Bee A05: angular statistics and path



n=850, 3 parts

$p_{\text{Rayleigh-NU}} = 5.7\text{e-}121$

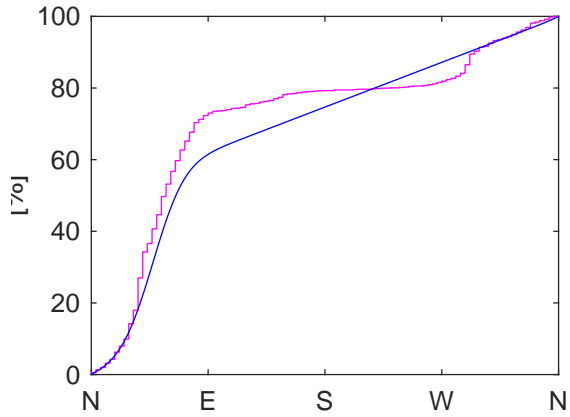
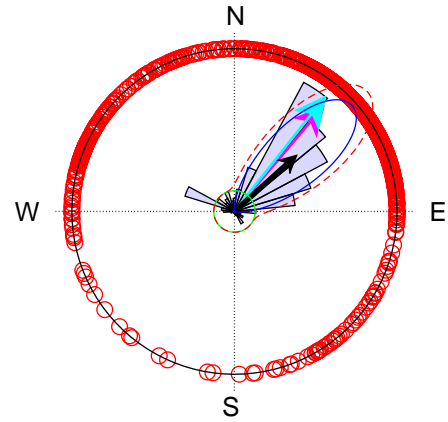
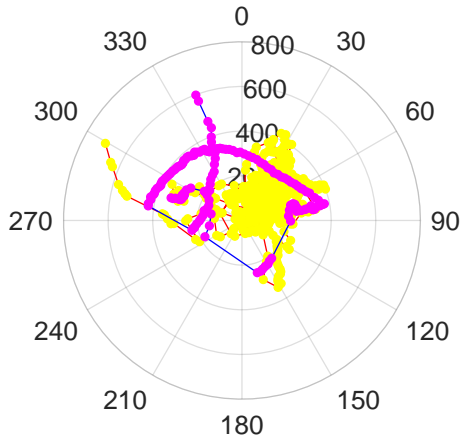
Best models= **M5A (100%)**

Best params: $\phi_1=50^\circ, \kappa_1=2.01$

$\lambda=0.75, \phi_2=295^\circ, \kappa_2=2.01$

$p_{\text{KS}}=2.01\text{e-}52$

Bee A06: angular statistics and path



$n=1008$, 2 parts

$p_{\text{Rayleigh-NU}} = 1.2e-214$

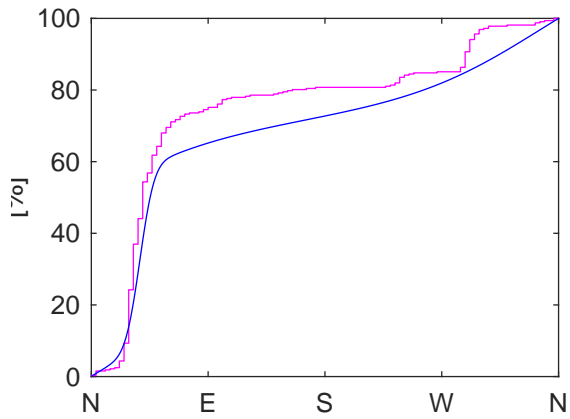
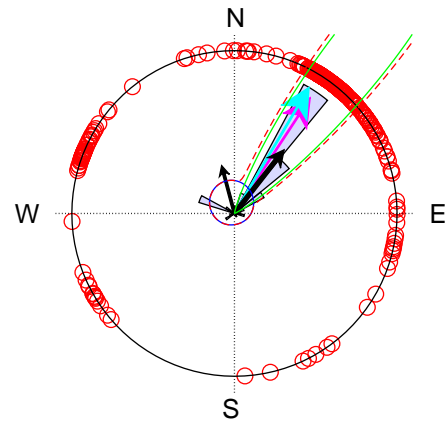
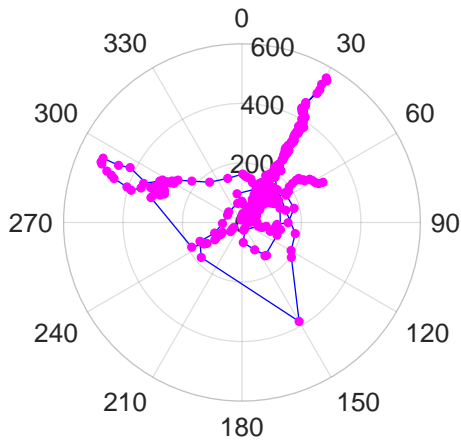
Best models= M2C (99%)

Best params: $\phi_1=48^\circ$, $\kappa_1=9.54$

$\lambda=0.64$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=4.53e-11$

Bee A07: angular statistics and path



n=322, 1 parts

$p_{\text{Rayleigh-NU}} = 4.9\text{e-}75$

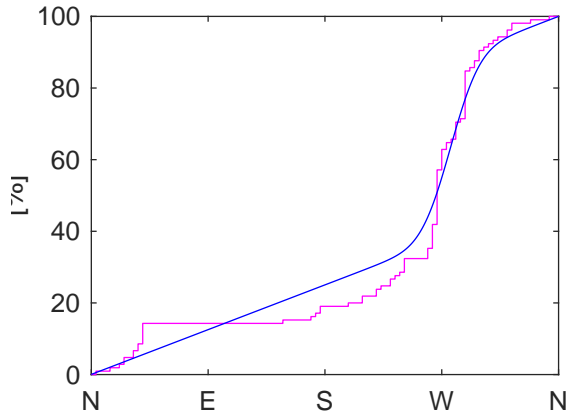
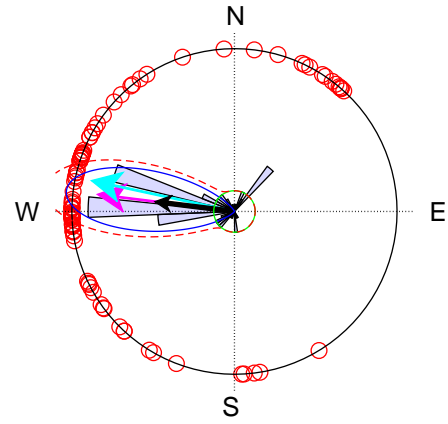
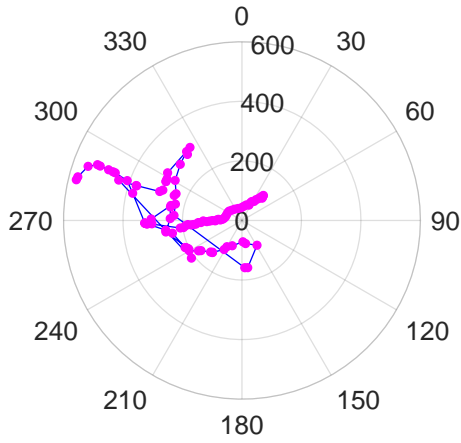
Best models= **M5B (100%)**

Best params: $\phi_1=345^\circ, \kappa_1=0.558$

$\lambda=0.38, \phi_2=38^\circ, \kappa_2=44.9$

$p_{\text{KS}}=0.00109$

Bee A08: angular statistics and path



n=105, 1 parts

$p_{\text{Rayleigh-NU}} = 2.5e-22$

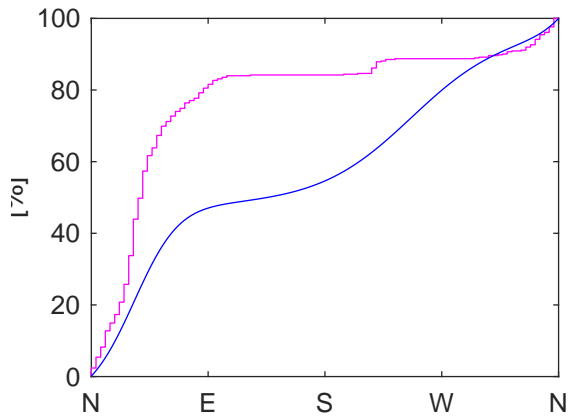
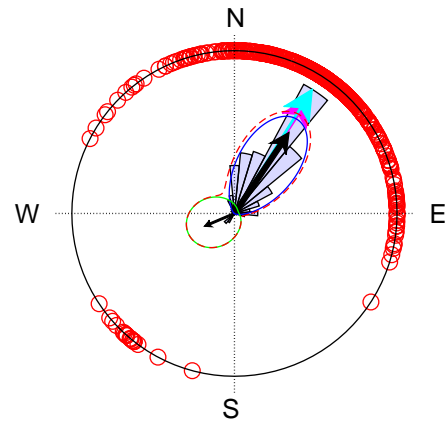
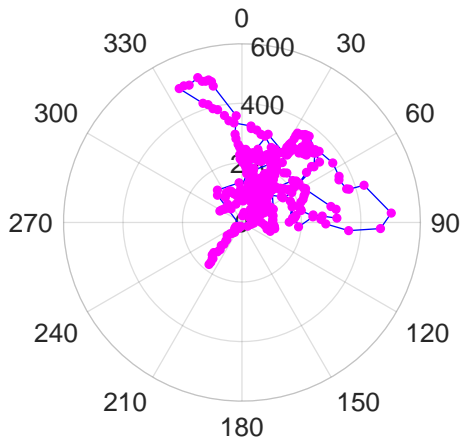
Best models= M2C (53%)
M2B (42%)

Best params: $\phi_1=277^\circ$, $\kappa_1=10.9$

$\lambda=0.62$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=0.0574$

Bee A09: angular statistics and path



n=462, 1 parts

$p_{\text{Rayleigh-NU}} = 9\text{e-}160$

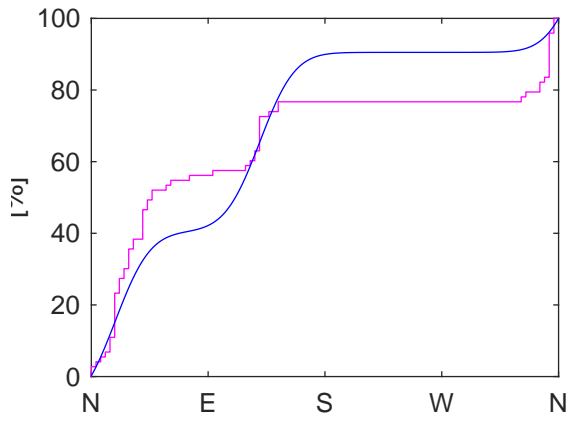
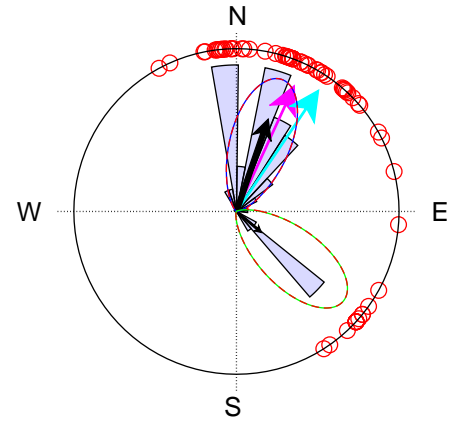
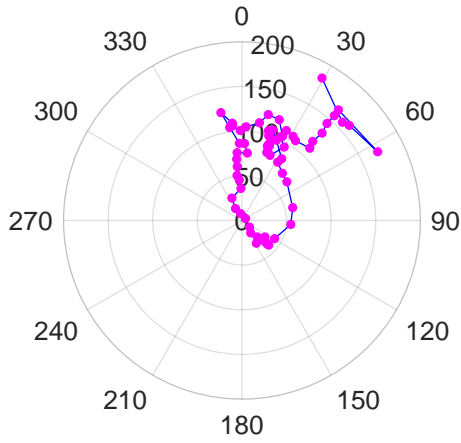
Best models= **M5B (100%)**

Best params: $\phi_1=34^\circ, \kappa_1=5.01$

$\lambda=0.75, \phi_2=247^\circ, \kappa_2=1.24$

$p_{\text{KS}}=1.19\text{e-}51$

Bee A10: angular statistics and path



n=73, 1 parts

$p_{\text{Rayleigh-NU}} = 6.3e-18$

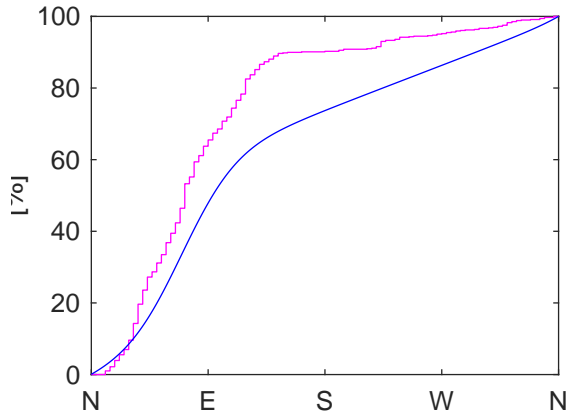
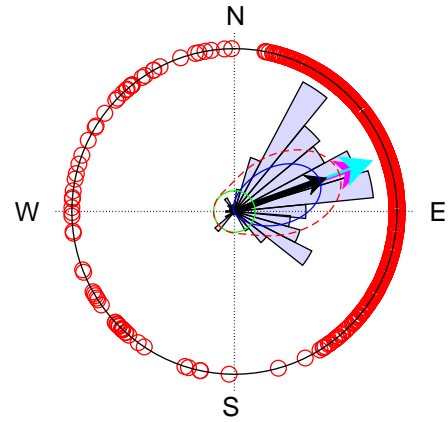
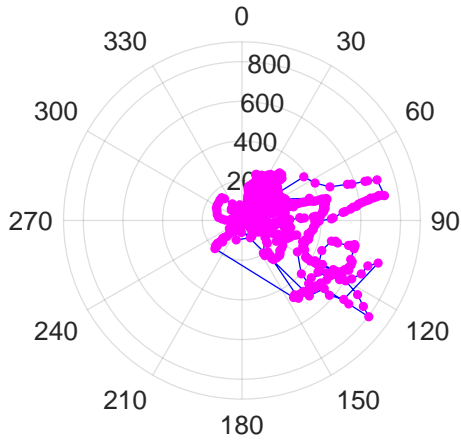
Best models= **M5A (100%)**

Best params: $\phi_1=19^\circ, \kappa_1=7.48$

$\lambda=0.75, \phi_2=130^\circ, \kappa_2=7.48$

$p_{\text{KS}}=0.0524$

Bee A11: angular statistics and path



n=687, 1 parts

$p_{\text{Rayleigh-NU}} = 1.1\text{e-}165$

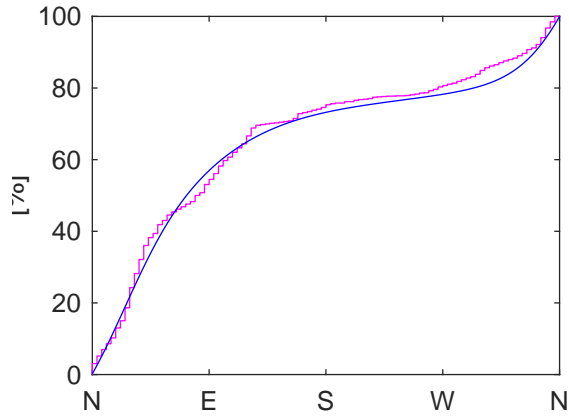
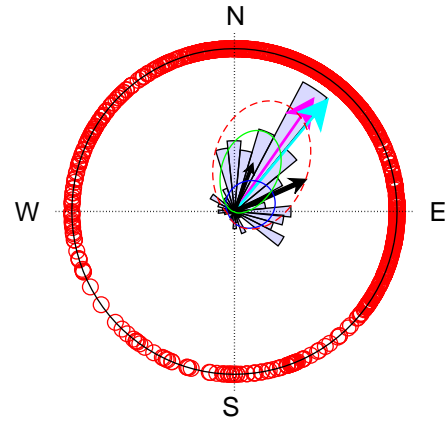
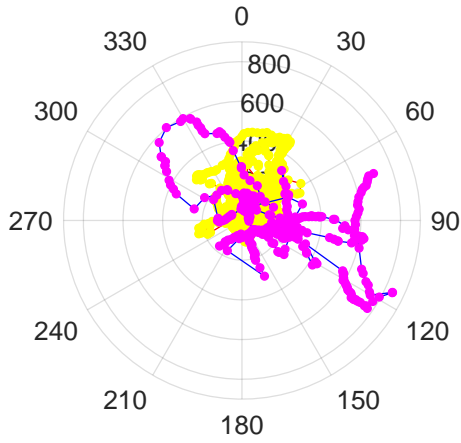
Best models= M2C (100%)

Best params: $\phi_1=70^\circ, \kappa_1=3.35$

$\lambda=0.75, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=6.48\text{e-}28$

Bee A12: angular statistics and path



n=1046, 2 parts

$p_{\text{Rayleigh-NU}} = 1.7\text{e-}138$

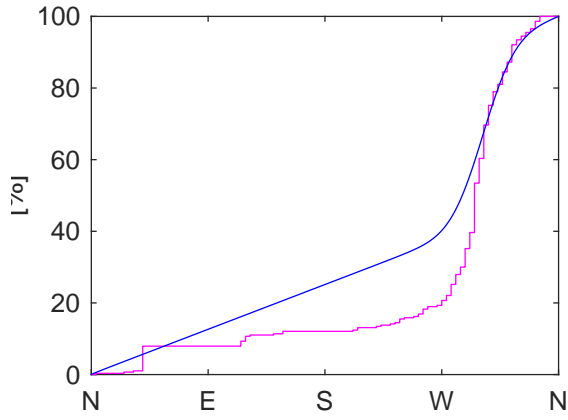
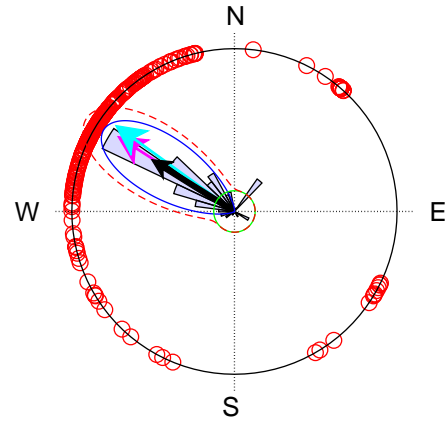
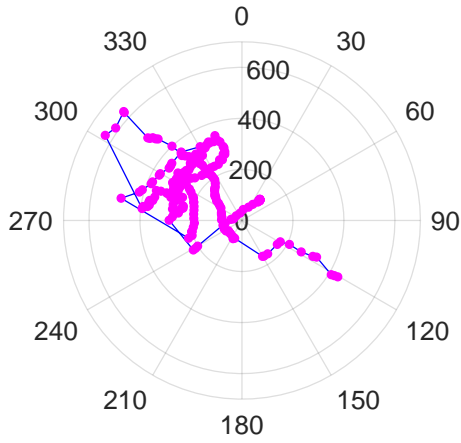
Best models= **M5B (100%)**

Best params: $\phi_1=66^\circ, \kappa_1=0.919$

$\lambda=0.6, \phi_2=21^\circ, \kappa_2=2.99$

$p_{\text{KS}}=0.0069$

Bee A13: angular statistics and path



$n=290$, 1 parts

$p_{\text{Rayleigh-NU}} = 3.4\text{e-}88$

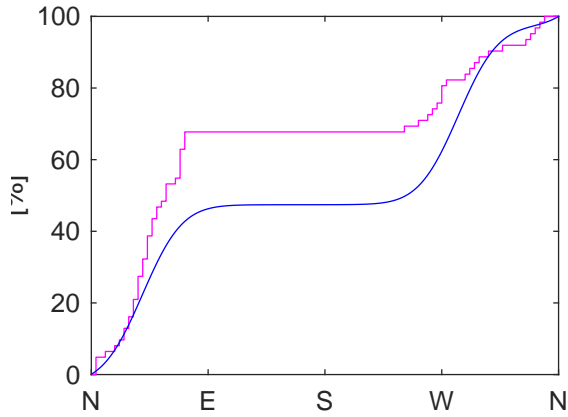
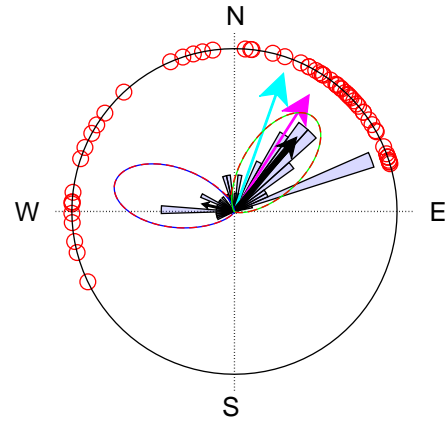
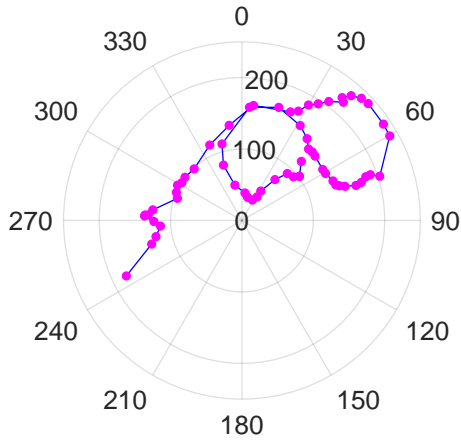
Best models= M2C (97%)

Best params: $\phi_1=302^\circ$, $\kappa_1=9.07$

$\lambda=0.75$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=1.4\text{e-}13$

Bee A14: angular statistics and path



n=62, 1 parts

$p_{\text{Rayleigh-NU}} = 1e-11$

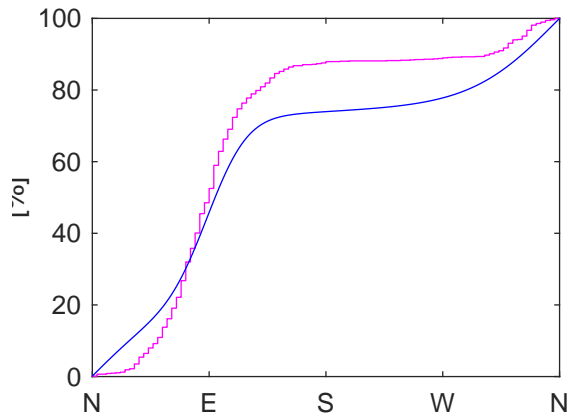
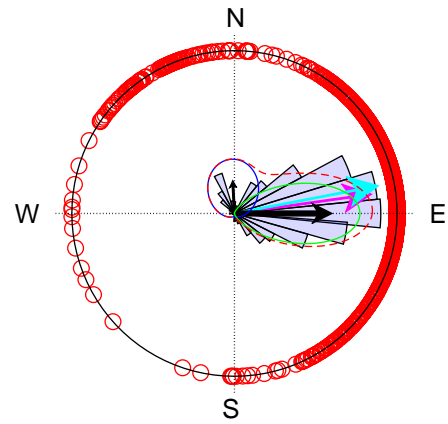
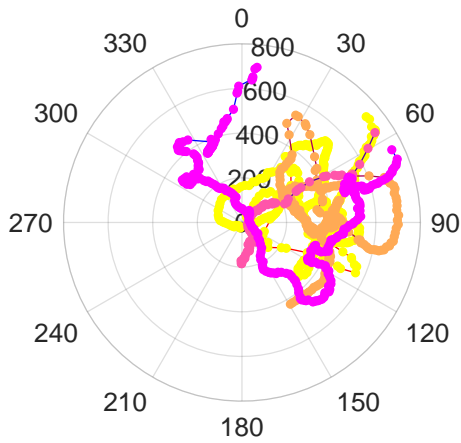
Best models= M5A (72%)
M5B (28%)

Best params: $\phi_1=283^\circ, \kappa_1=5.88$

$\lambda=0.26, \phi_2=40^\circ, \kappa_2=5.88$

$p_{\text{KS}}=0.000819$

Bee B01: angular statistics and path



n=1053, 4 parts

$p_{\text{Rayleigh-NU}} = 1.9\text{e-}276$

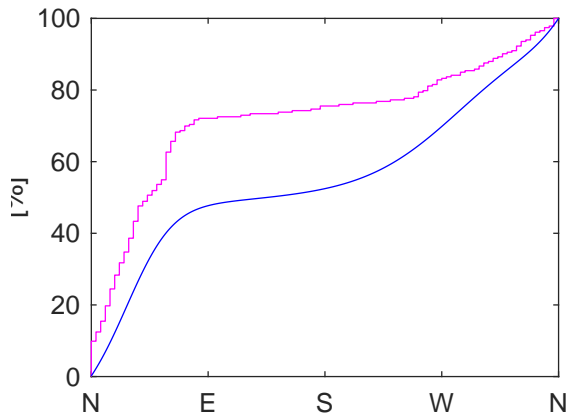
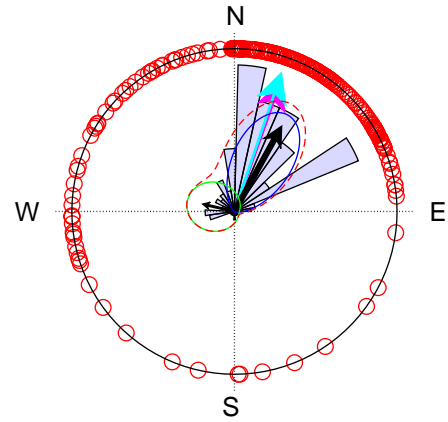
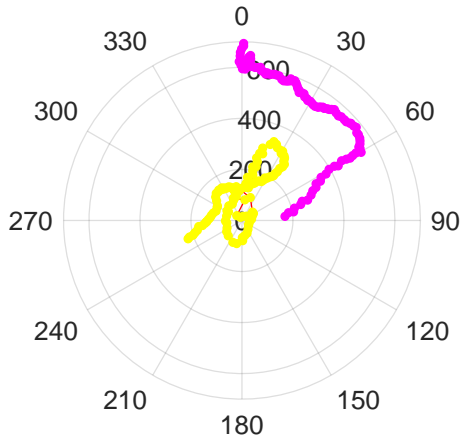
Best models= **M5B (100%)**

Best params: $\phi_1=357^\circ, \kappa_1=1.41$

$\lambda=0.25, \phi_2=90^\circ, \kappa_2=6.11$

$p_{\text{KS}}=2.59\text{e-}18$

Bee B02: angular statistics and path



n=233, 2 parts

$p_{\text{Rayleigh-NU}} = 1.7\text{e-}53$

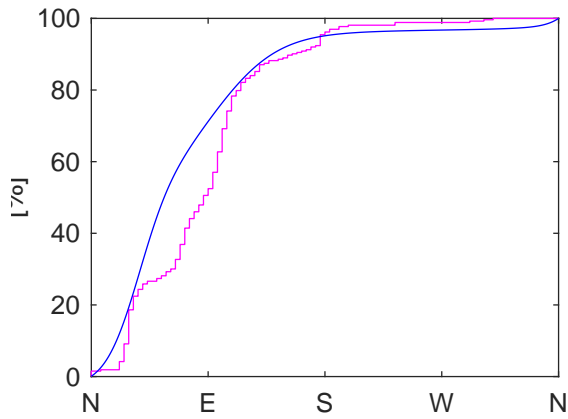
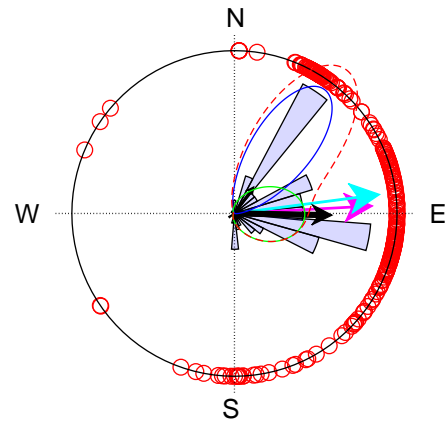
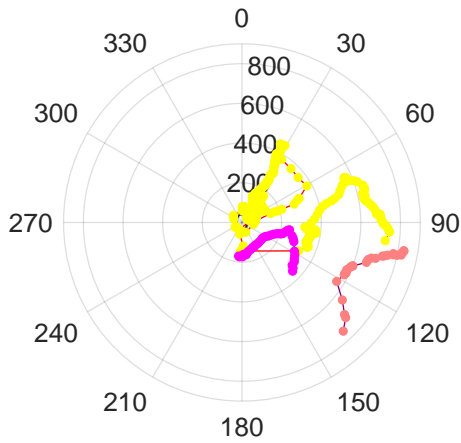
Best models= **M5B (100%)**

Best params: $\phi_1=29^\circ, \kappa_1=4.78$

$\lambda=0.75, \phi_2=283^\circ, \kappa_2=1.15$

$p_{\text{KS}}=3.19\text{e-}13$

Bee B03: angular statistics and path



n=263, 3 parts

$p_{\text{Rayleigh-NU}} = 3.8\text{e-}68$

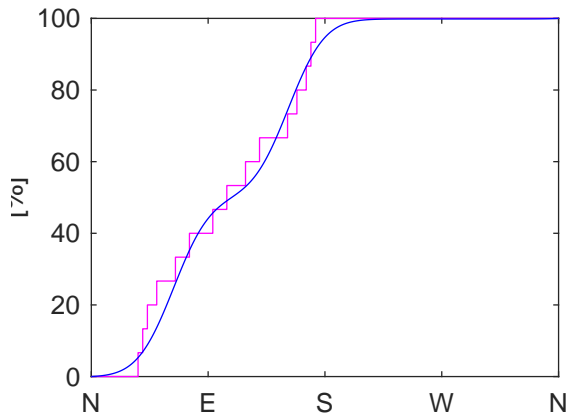
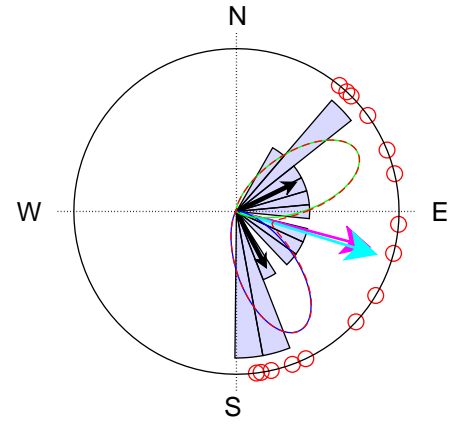
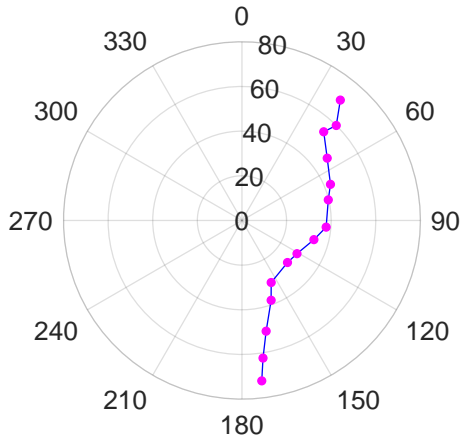
Best models= **M5B (89%)**

Best params: $\phi_1=36^\circ, \kappa_1=8.96$

$\lambda=0.25, \phi_2=91^\circ, \kappa_2=2.16$

$p_{\text{KS}}=1.62\text{e-}18$

Bee B04: angular statistics and path



n=15, 1 parts

$p_{\text{Rayleigh-NU}} = 0.0007$

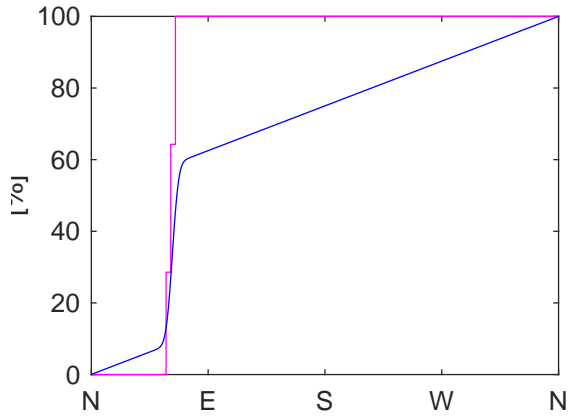
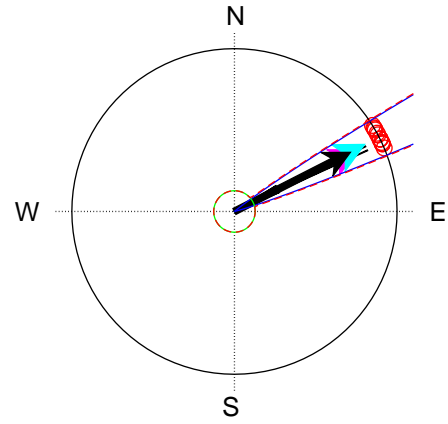
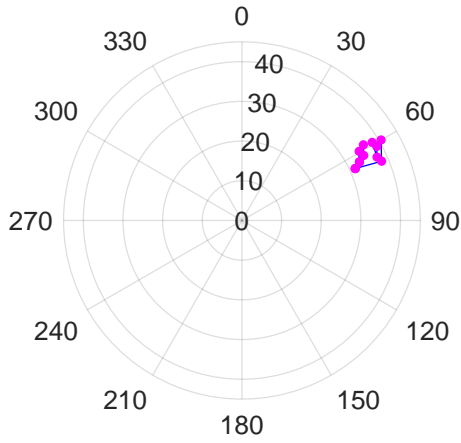
Best models= M5A (82%)
M2A (15%)

Best params: $\phi_1=152^\circ, \kappa_1=7.01$

$\lambda=0.49, \phi_2=64^\circ, \kappa_2=7.01$

$p_{\text{KS}}=0.986$

Bee B05: angular statistics and path



n=14, 1 parts

$p_{\text{Rayleigh-NU}} = 5.4e-10$

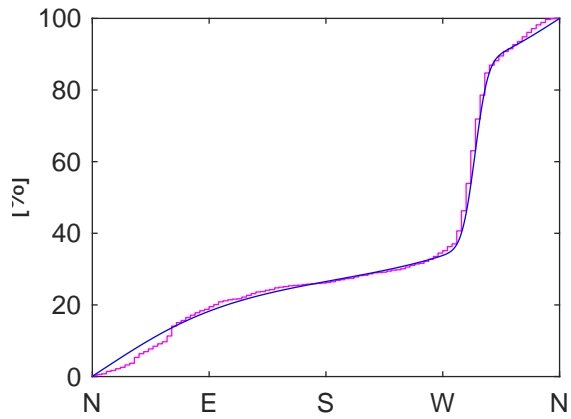
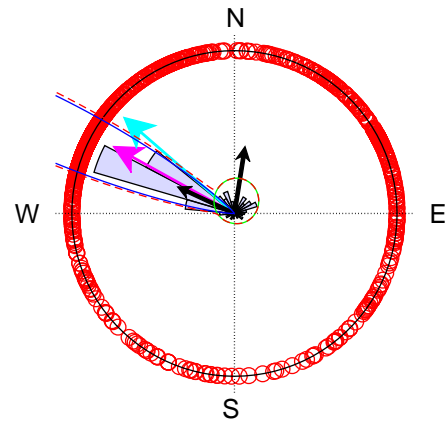
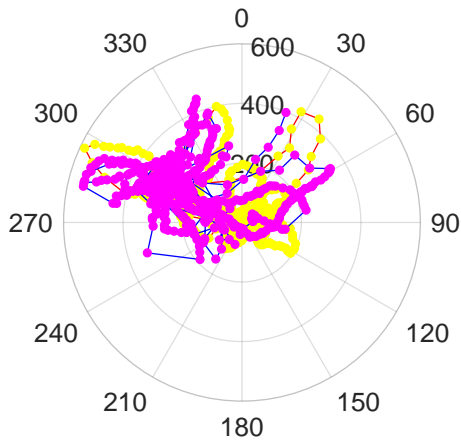
Best models= **M2A (100%)**

Best params: $\phi_1=63^\circ, \kappa_1=227$

$\lambda=1, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=0.00279$

Bee B06: angular statistics and path



n=1050, 2 parts

$p_{\text{Rayleigh-NU}} = 1e-144$

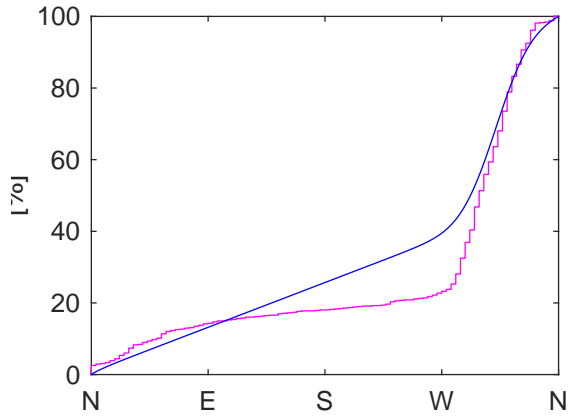
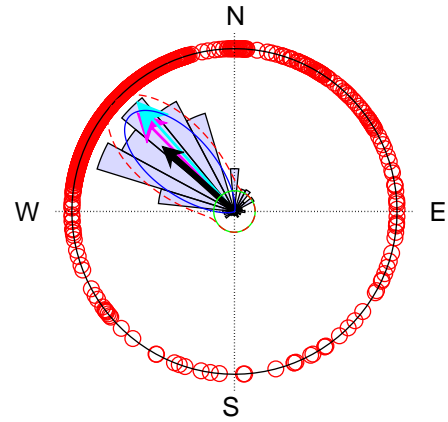
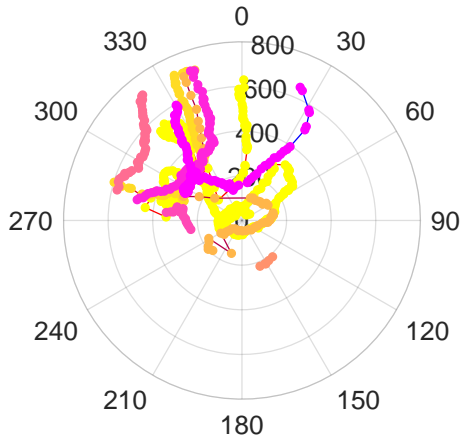
Best models= **M5B (100%)**

Best params: $\phi_1=295^\circ, \kappa_1=54.2$

$\lambda=0.48, \phi_2=9^\circ, \kappa_2=0.634$

$p_{\text{KS}}=0.0713$

Bee B07: angular statistics and path



n=748, 8 parts

$p_{\text{Rayleigh-NU}} = 2.2\text{e-}203$

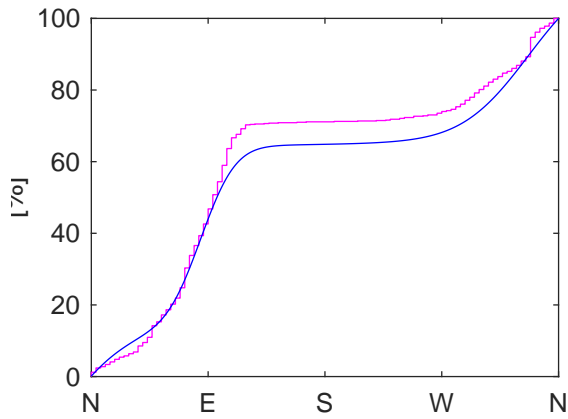
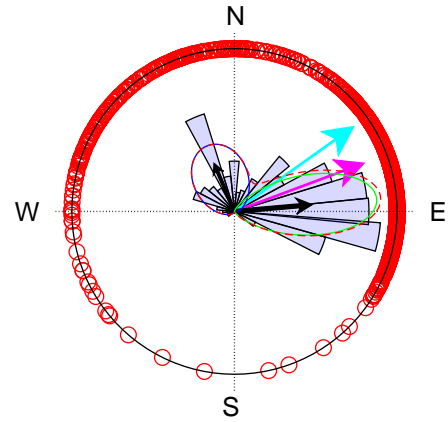
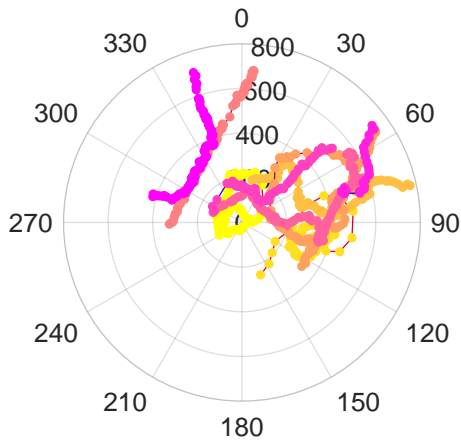
Best models= M2C (93%)

Best params: $\phi_1=312^\circ, \kappa_1=7.71$

$\lambda=0.74, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=1.92\text{e-}22$

Bee B08: angular statistics and path



n=831, 9 parts

$p_{\text{Rayleigh-NU}} = 4.9\text{e-}117$

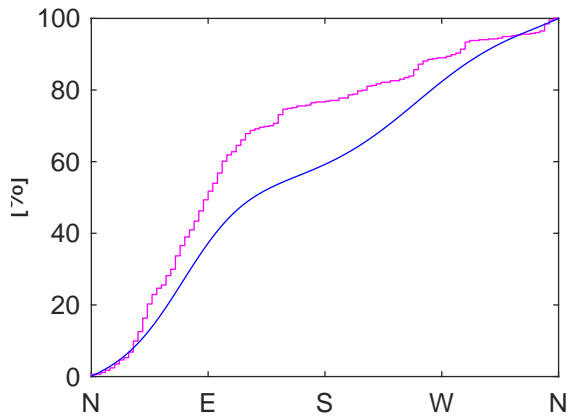
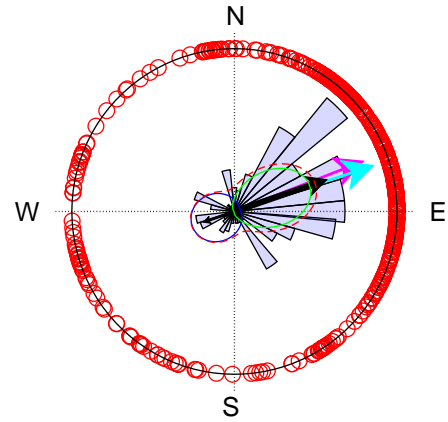
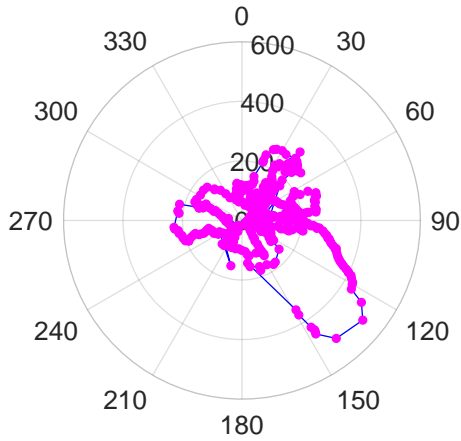
Best models= **M5B (100%)**

Best params: $\phi_1=337^\circ, \kappa_1=2.19$

$\lambda=0.4, \phi_2=85^\circ, \kappa_2=7.83$

$p_{\text{KS}}=5.36\text{e-}05$

Bee B09: angular statistics and path



n=454, 1 parts

$p_{\text{Rayleigh-NU}} = 3.5e-47$

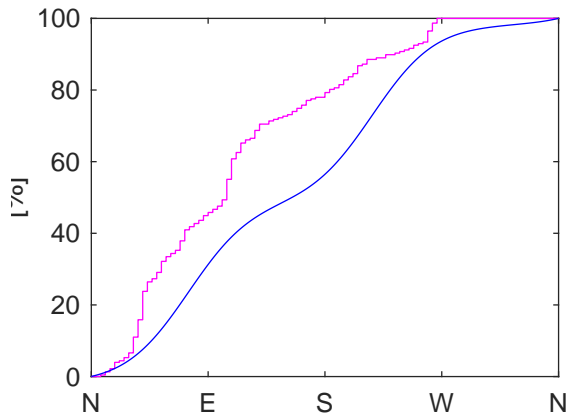
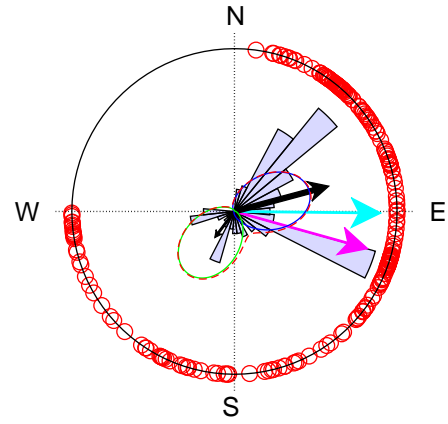
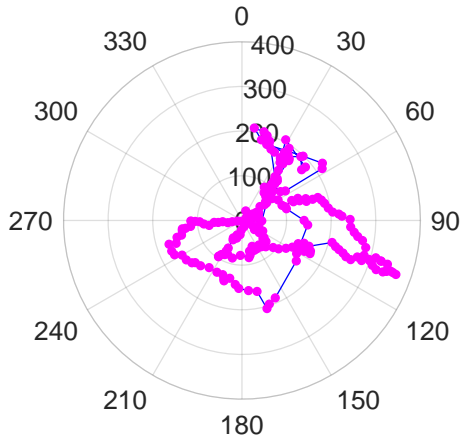
Best models= **M4B (91%)**

Best params: $\phi_1=251^\circ, \kappa_1=1.01$

$\lambda=0.25, \phi_2=71^\circ, \kappa_2=2.65$

$p_{\text{KS}}=2.46e-16$

Bee B10: angular statistics and path



$n=227$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.2e-20$

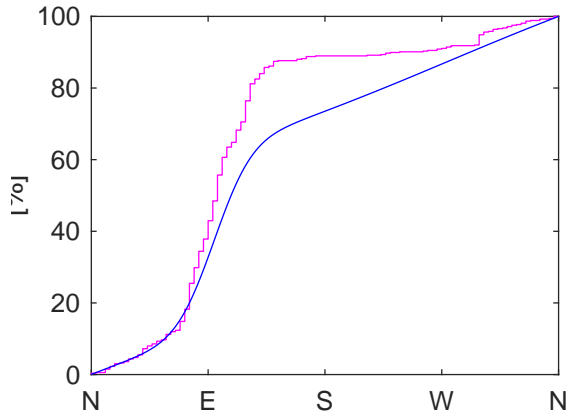
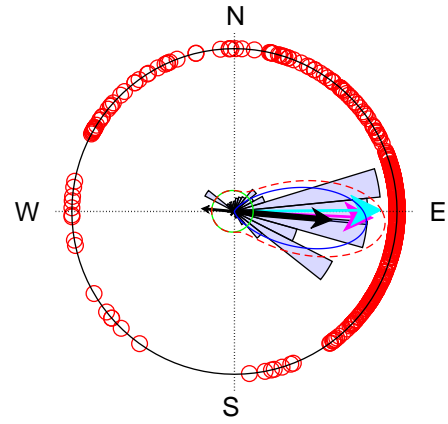
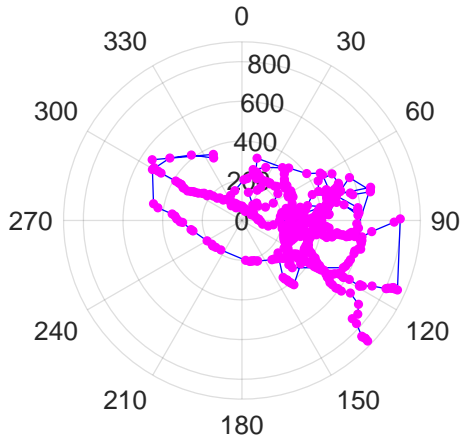
Best models= **M5A (100%)**

Best params: $\phi_1=75^\circ$, $\kappa_1=2.55$

$\lambda=0.75$, $\phi_2=217^\circ$, $\kappa_2=2.55$

$p_{\text{KS}}=7.63e-13$

Bee B11: angular statistics and path



n=526, 1 parts

$p_{\text{Rayleigh-NU}} = 3.8\text{e-}132$

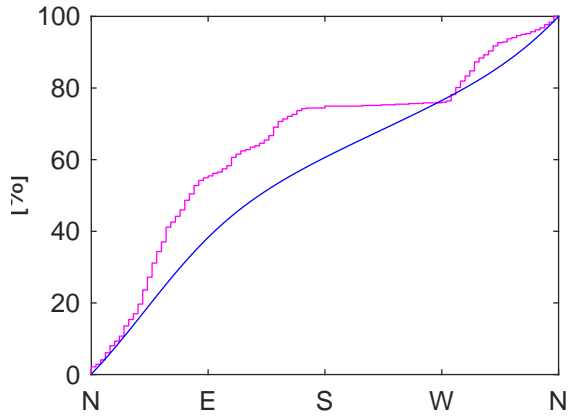
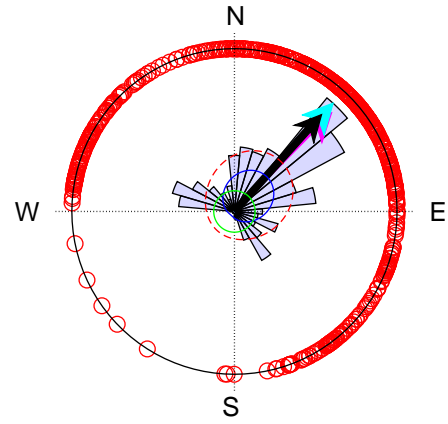
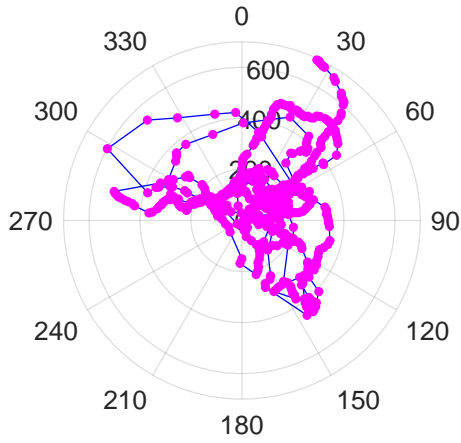
Best models= **M4B (100%)**

Best params: $\phi_1=95^\circ, \kappa_1=6.77$

$\lambda=0.75, \phi_2=275^\circ, \kappa_2=0.098$

$p_{\text{KS}}=5.65\text{e-}19$

Bee C01: angular statistics and path



n=559, 1 parts

$p_{\text{Rayleigh-NU}} = 2e-62$

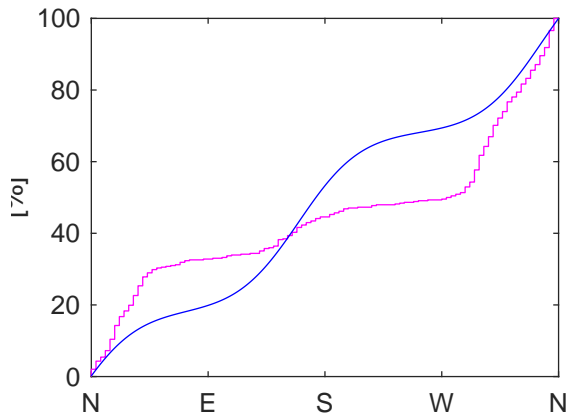
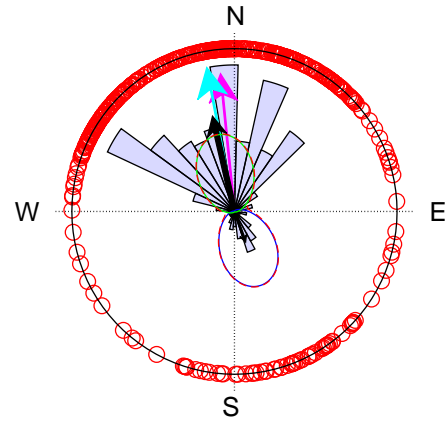
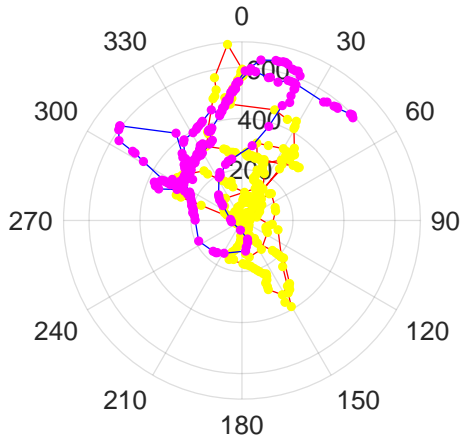
Best models= **M2A (100%)**

Best params: $\phi_1=42^\circ, \kappa_1=1.12$

$\lambda=1, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=1.12e-15$

Bee C02: angular statistics and path



n=442, 2 parts

$p_{\text{Rayleigh-NU}} = 7.1\text{e-}59$

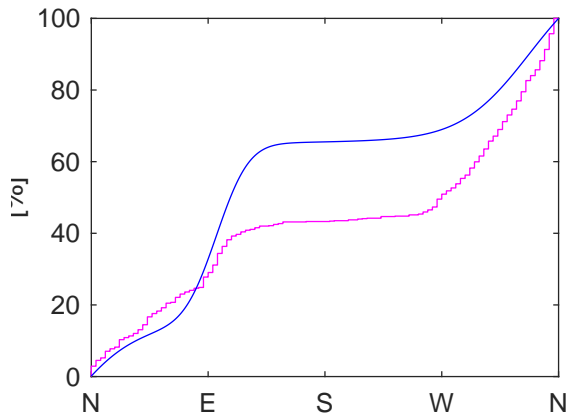
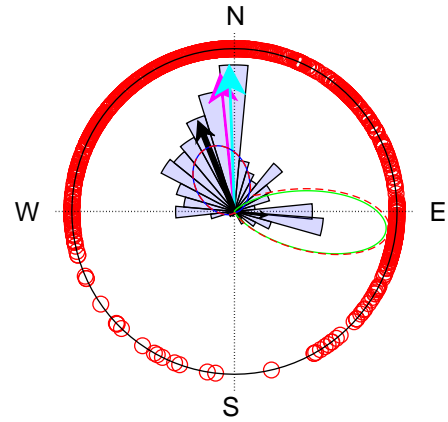
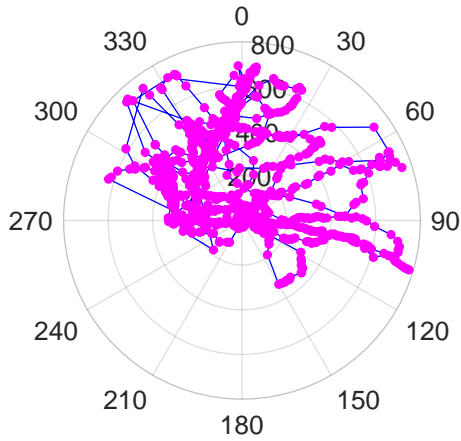
Best models= M5A (53%)
M4A (39%)

Best params: $\phi_1=160^\circ, \kappa_1=2.6$

$\lambda=0.25, \phi_2=347^\circ, \kappa_2=2.6$

$p_{\text{KS}}=1.67\text{e-}16$

Bee C03: angular statistics and path



n=864, 1 parts

$p_{\text{Rayleigh-NU}} = 6.8\text{e-}98$

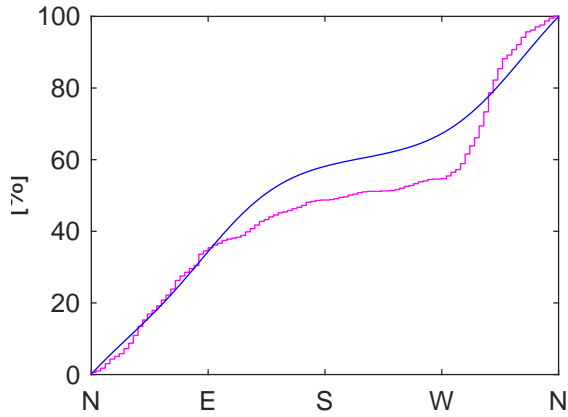
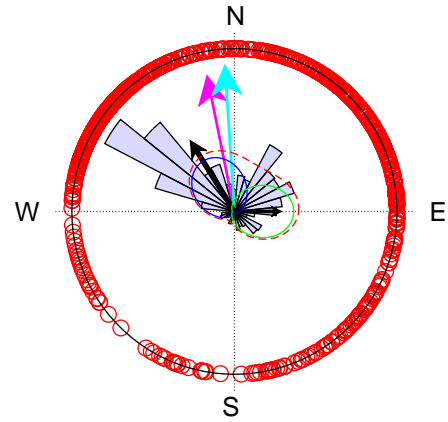
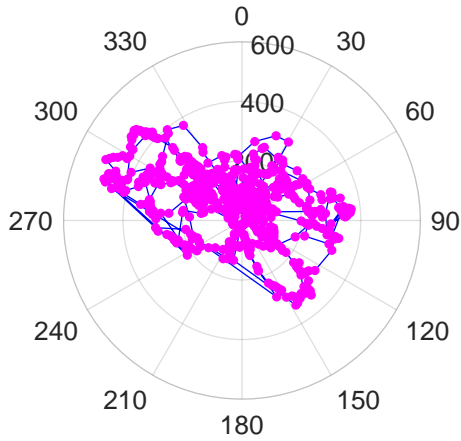
Best models= **M5B (100%)**

Best params: $\phi_1=338^\circ, \kappa_1=2.1$

$\lambda=0.75, \phi_2=97^\circ, \kappa_2=8.92$

$p_{\text{KS}}=1.15\text{e-}38$

Bee C04: angular statistics and path



n=788, 1 parts

$p_{\text{Rayleigh-NU}} = 1.3\text{e-}49$

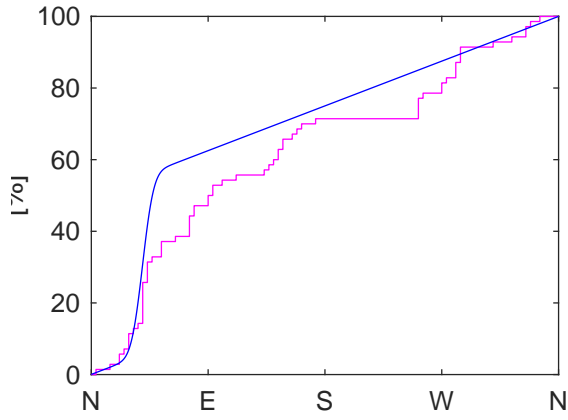
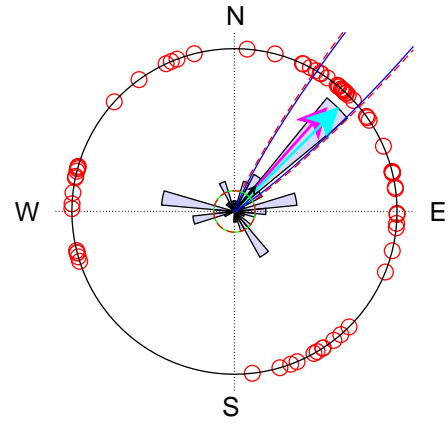
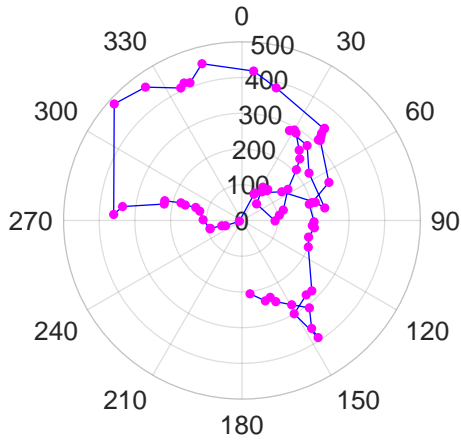
Best models= **M5A (100%)**

Best params: $\phi_1=328^\circ, \kappa_1=1.63$

$\lambda=0.64, \phi_2=90^\circ, \kappa_2=1.63$

$p_{\text{KS}}=2.57\text{e-}13$

Bee C05: angular statistics and path



n=70, 1 parts

$p_{\text{Rayleigh-NU}} = 0.0002$

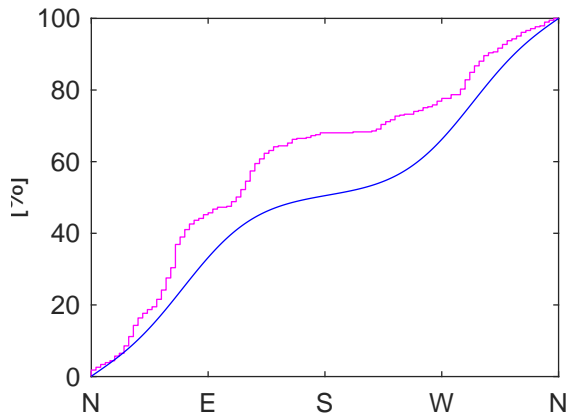
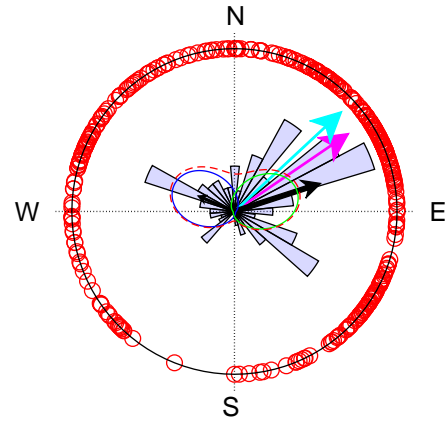
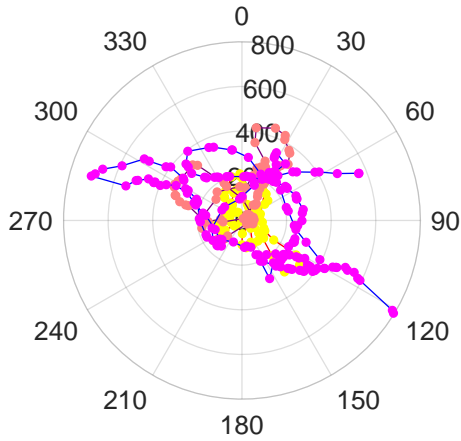
Best models= M2C (99%)

Best params: $\phi_1=40^\circ$, $\kappa_1=72.6$

$\lambda=0.25$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=0.000496$

Bee D01: angular statistics and path



n=385, 3 parts

$p_{\text{Rayleigh-NU}} = 7.2\text{e-}21$

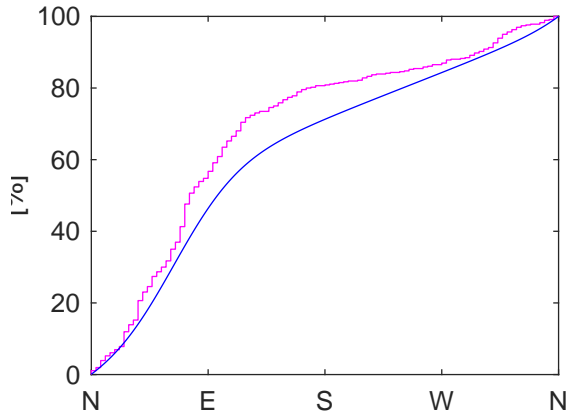
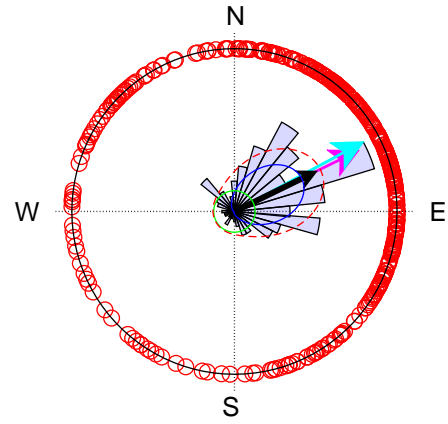
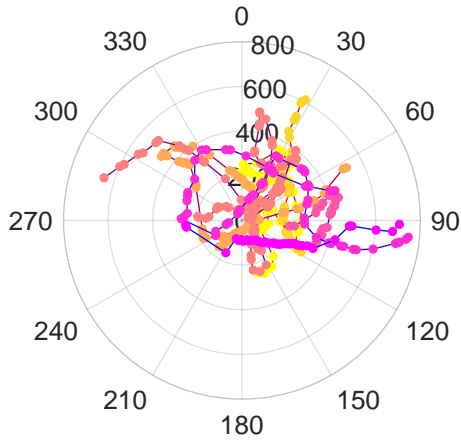
Best models= **M5A (99%)**

Best params: $\phi_1=293^\circ, \kappa_1=1.94$

$\lambda=0.3, \phi_2=72^\circ, \kappa_2=1.94$

$p_{\text{KS}}=7.93\text{e-}11$

Bee D02: angular statistics and path



$n=460$, 7 parts

$p_{\text{Rayleigh-NU}} = 1.6e-62$

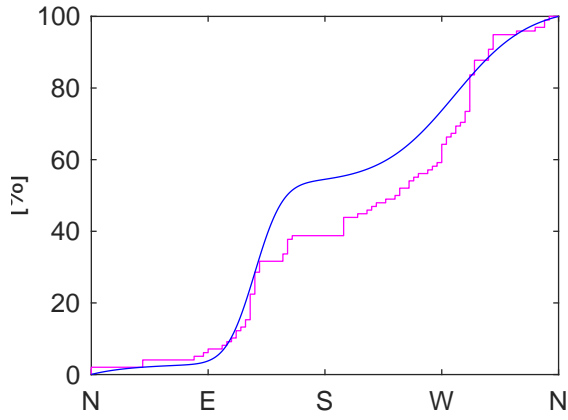
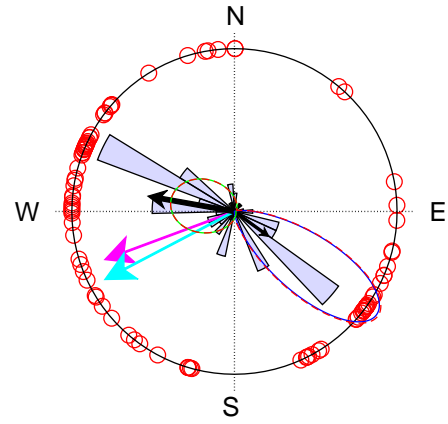
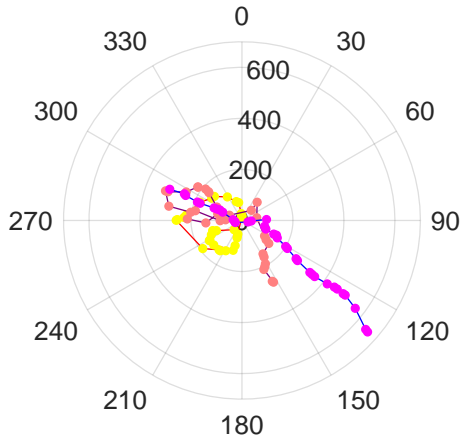
Best models= M2C (98%)

Best params: $\phi_1=64^\circ$, $\kappa_1=2.4$

$\lambda=0.7$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=2.38e-06$

Bee D03: angular statistics and path



n=98, 3 parts

$p_{\text{Rayleigh-NU}} = 0.0079$

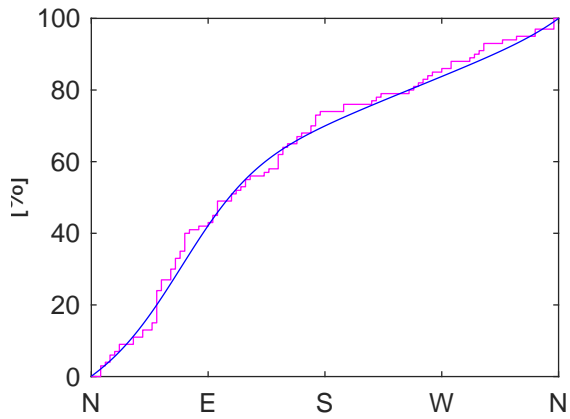
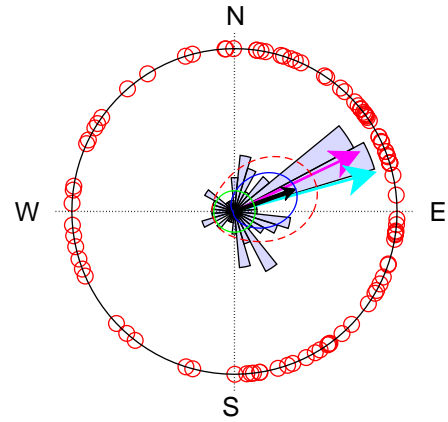
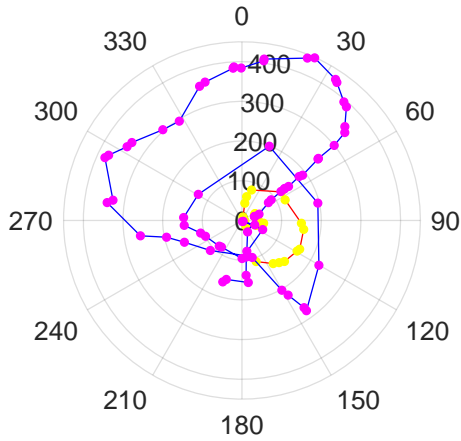
Best models= **M5B (98%)**

Best params: $\phi_1=126^\circ, \kappa_1=11.7$

$\lambda=0.33, \phi_2=280^\circ, \kappa_2=1.87$

$p_{\text{KS}}=0.00603$

Bee D04: angular statistics and path



n=100, 2 parts

$p_{\text{Rayleigh-NU}} = 9.2e-6$

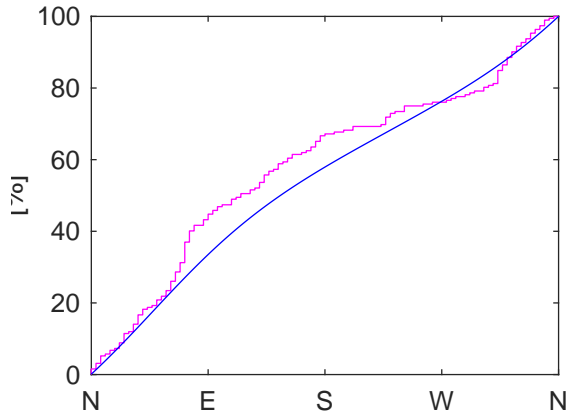
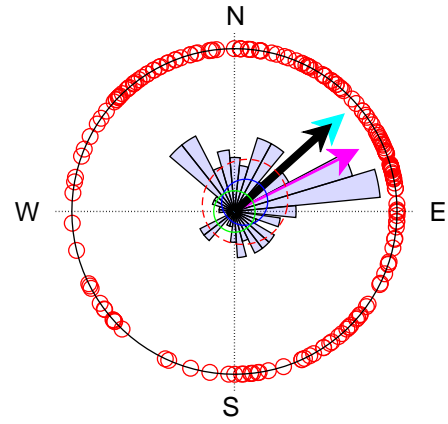
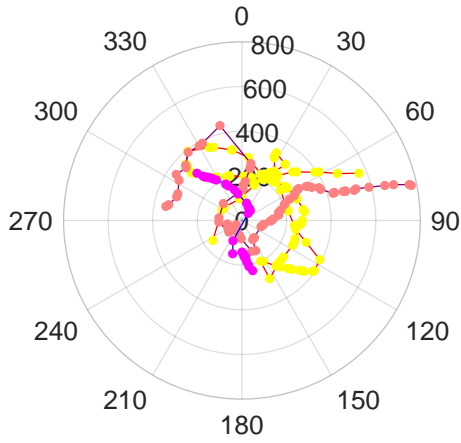
Best models= M2B (46%)
M2A (21%)
M3B (17%)

Best params: $\phi_1=70^\circ, \kappa_1=1.91$

$\lambda=0.5, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=0.605$

Bee D05: angular statistics and path



$n=192$, 3 parts

$p_{\text{Rayleigh-NU}} = 3.5e-10$

Best models=

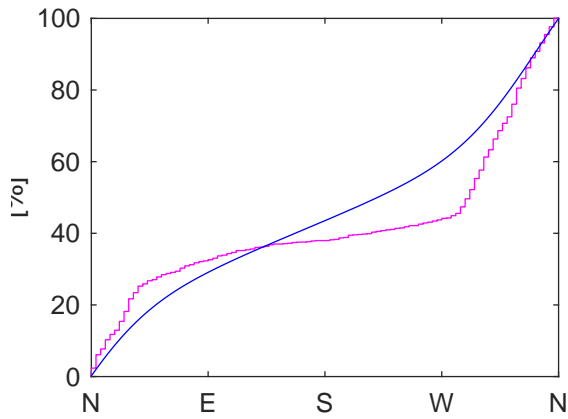
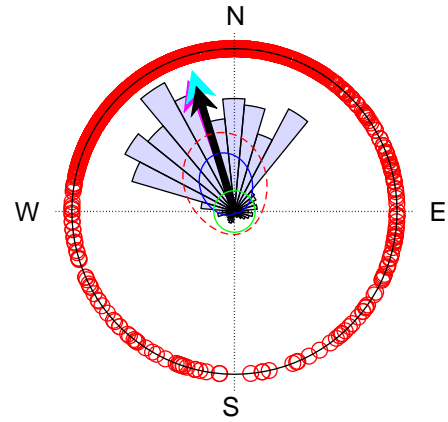
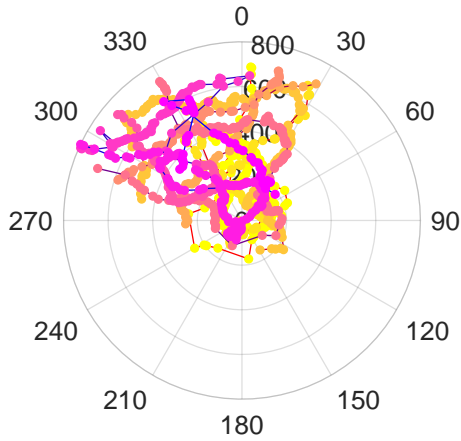
- M2A (60%)
- M2C (14%)
- M5A (12%)
- M2B (10%)

Best params: $\phi_1=48^\circ$, $\kappa_1=0.705$

$\lambda=1$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=0.0176$

Bee D06: angular statistics and path



$n=935$, 10 parts

$p_{\text{Rayleigh-NU}} = 3.1e-185$

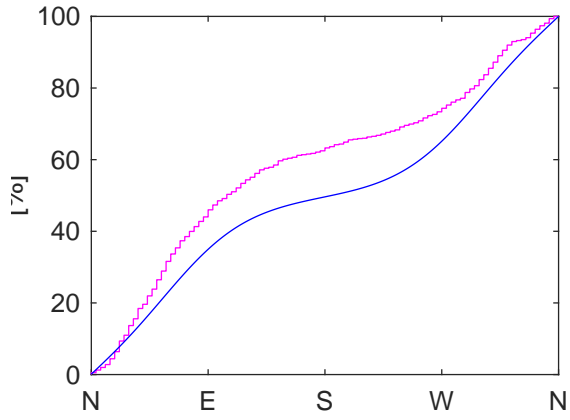
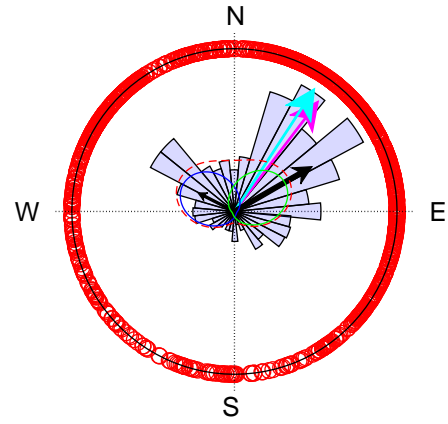
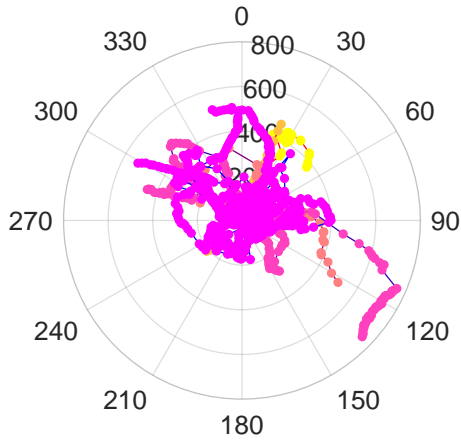
Best models= **M2A (99%)**

Best params: $\phi_1=343^\circ$, $\kappa_1=1.67$

$\lambda=1$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=8.19e-30$

Bee D07: angular statistics and path



$n=1111$, 5 parts

$p_{\text{Rayleigh-NU}} = 1.7e-62$

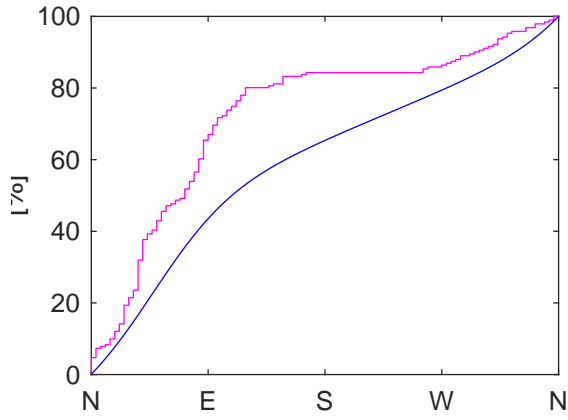
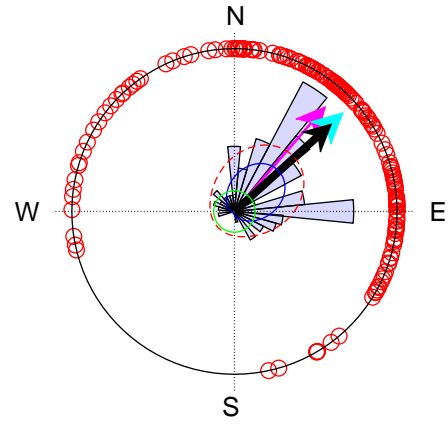
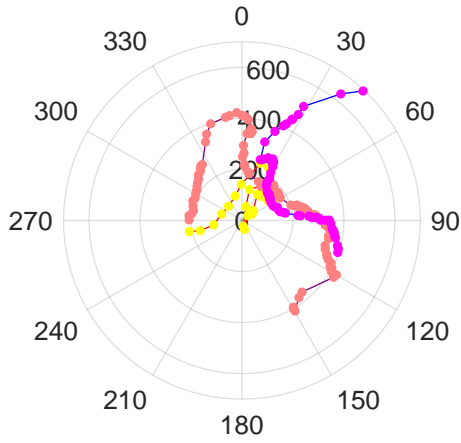
Best models= **M5A (100%)**

Best params: $\phi_1=297^\circ$, $\kappa_1=1.57$

$\lambda=0.31$, $\phi_2=60^\circ$, $\kappa_2=1.57$

$p_{\text{KS}}=7.64e-20$

Bee D08: angular statistics and path



n=191, 3 parts

$p_{\text{Rayleigh-NU}} = 4.4\text{e-}38$

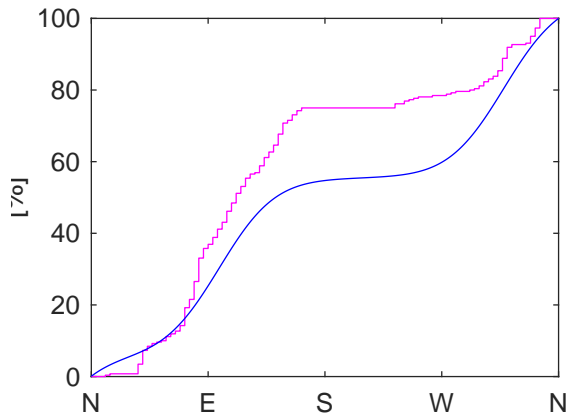
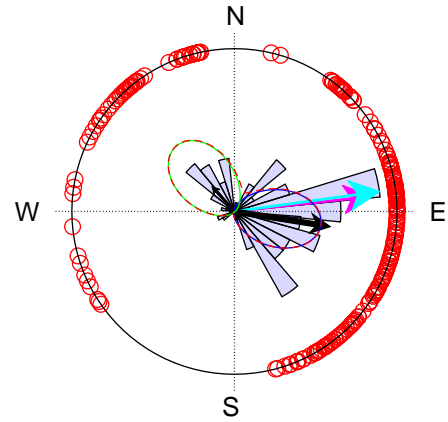
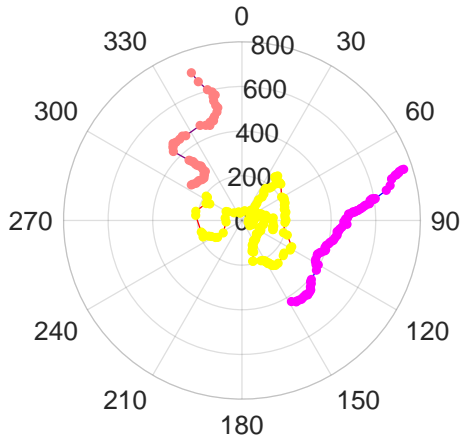
Best models= **M2A (98%)**

Best params: $\phi_1=48^\circ, \kappa_1=1.66$

$\lambda=1, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=4.75\text{e-}12$

Bee D09: angular statistics and path



n=260, 3 parts

$p_{\text{Rayleigh-NU}} = 2.3\text{e-}26$

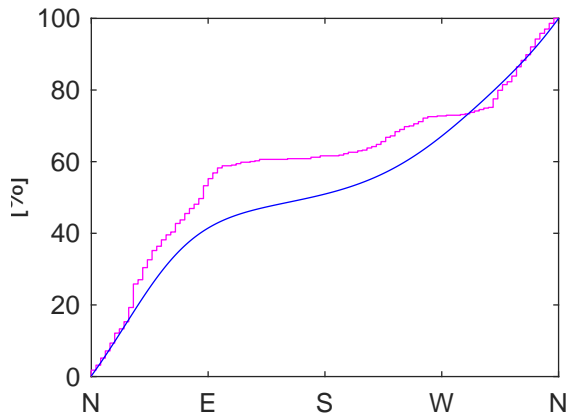
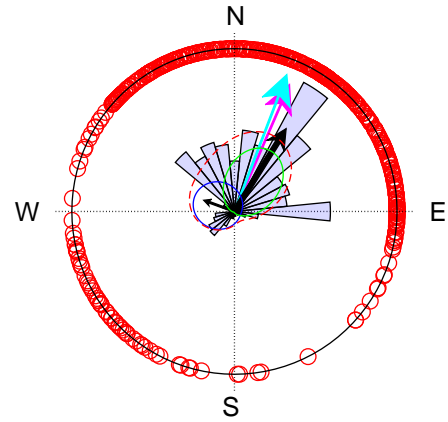
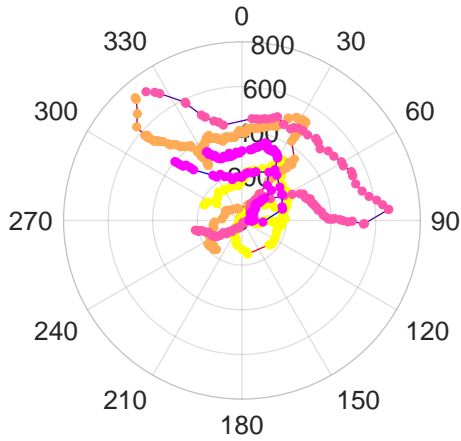
Best models= M5A (71%)
M5B (29%)

Best params: $\phi_1=99^\circ, \kappa_1=3.13$

$\lambda=0.74, \phi_2=318^\circ, \kappa_2=3.13$

$p_{\text{KS}}=1.02\text{e-}10$

Bee D10: angular statistics and path



n=503, 4 parts

$p_{\text{Rayleigh-NU}} = 2e-66$

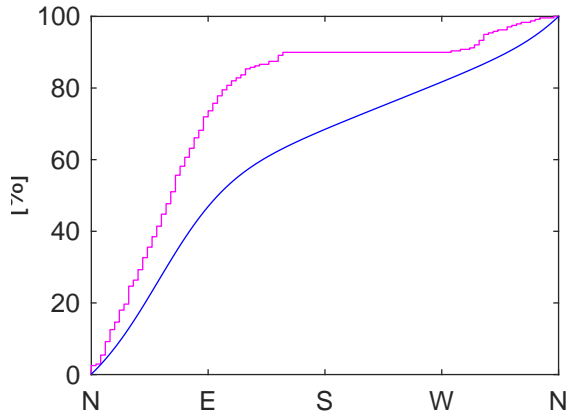
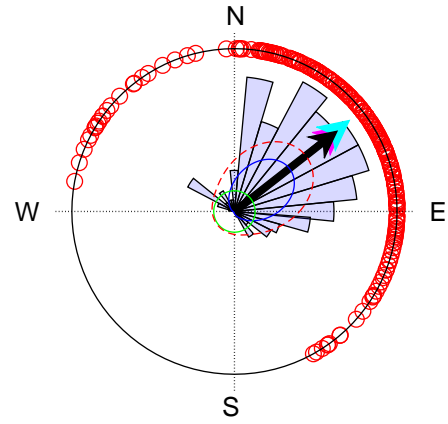
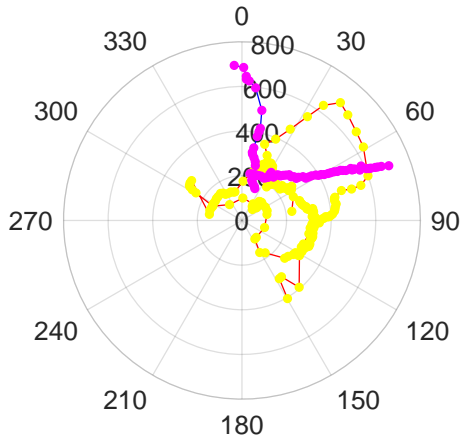
Best models= **M5B (100%)**

Best params: $\phi_1=290^\circ, \kappa_1=0.919$

$\lambda=0.25, \phi_2=32^\circ, \kappa_2=2.17$

$p_{\text{KS}}=3.07e-10$

Bee D11: angular statistics and path



n=239, 2 parts

$p_{\text{Rayleigh-NU}} = 1e-63$

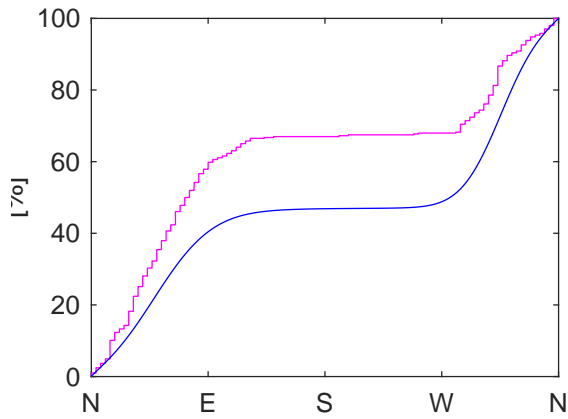
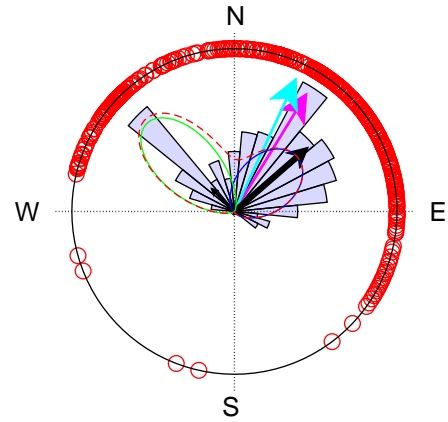
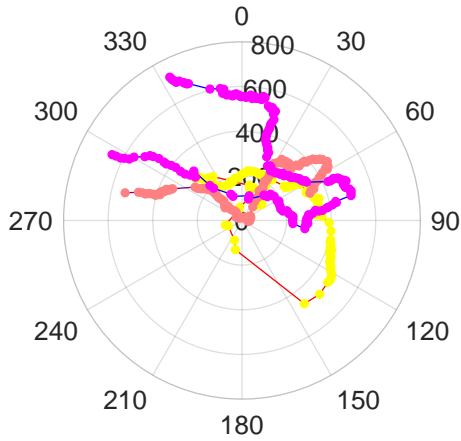
Best models= **M2A (100%)**

Best params: $\phi_1=52^\circ$, $\kappa_1=2.13$

$\lambda=1$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=1.17e-16$

Bee D12: angular statistics and path



n=406, 3 parts

$p_{\text{Rayleigh-NU}} = 2.6\text{e-}76$

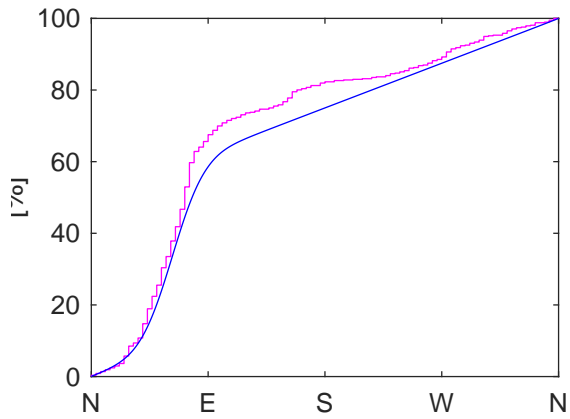
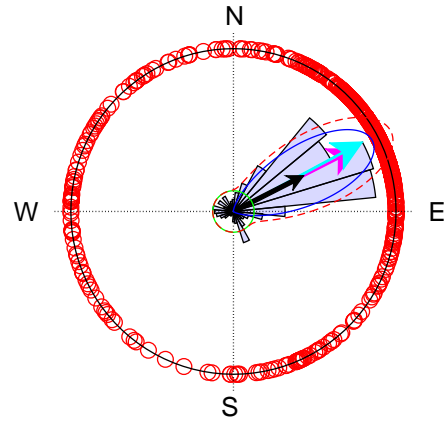
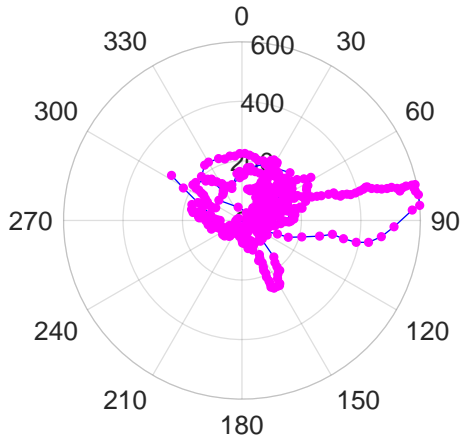
Best models= **M5B (100%)**

Best params: $\phi_1=49^\circ, \kappa_1=2.87$

$\lambda=0.75, \phi_2=315^\circ, \kappa_2=5.98$

$p_{\text{KS}}=7.91\text{e-}16$

Bee D13: angular statistics and path



n=576, 1 parts

$p_{\text{Rayleigh-NU}} = 1.3\text{e-}91$

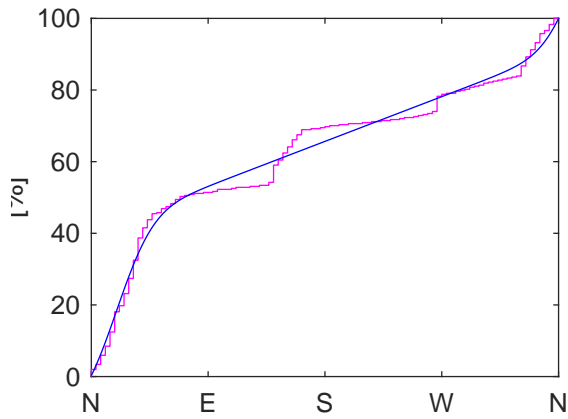
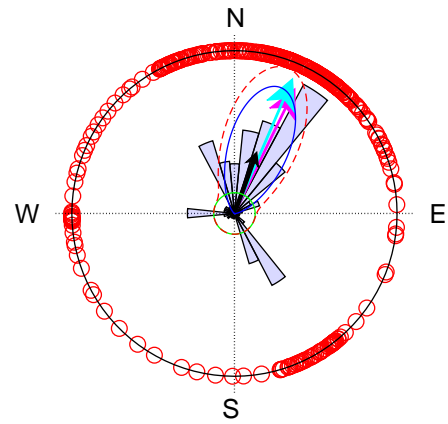
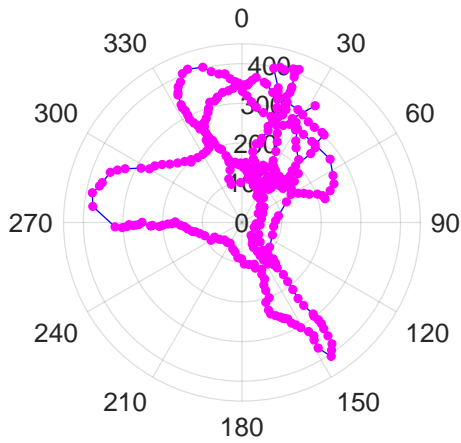
Best models= M2C (74%)
M4B (26%)

Best params: $\phi_1=63^\circ$, $\kappa_1=9.28$

$\lambda=0.6$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=0.000152$

Bee E01: angular statistics and path



n=354, 1 parts

$P_{\text{Rayleigh-NU}} = 3.6\text{e-}36$

Best models=

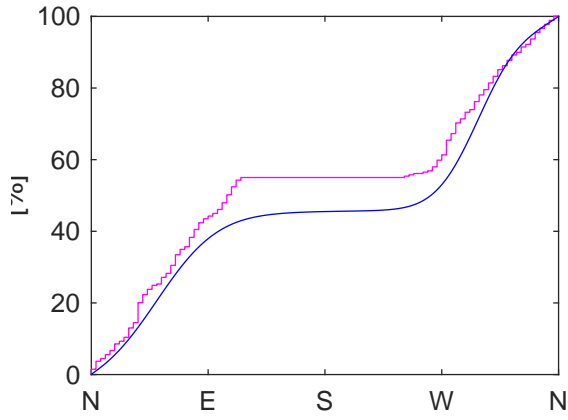
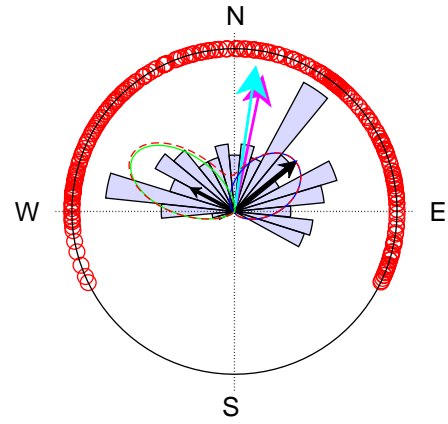
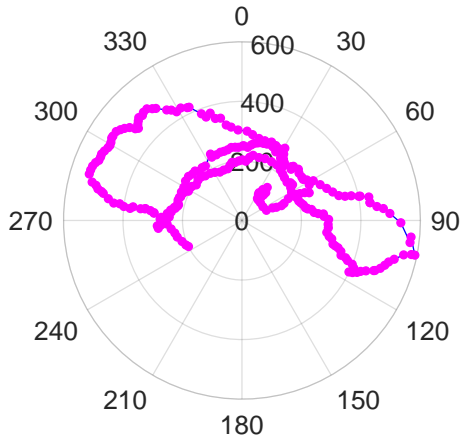
- M2B (42%)
- M2C (18%)
- M3B (16%)
- M5B (13%)
- M4B (12%)

Best params: $\phi_1=20^\circ, \kappa_1=6.93$

$\lambda=0.5, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=0.111$

Bee E02: angular statistics and path



n=269, 1 parts

$p_{\text{Rayleigh-NU}} = 1.4\text{e-}27$

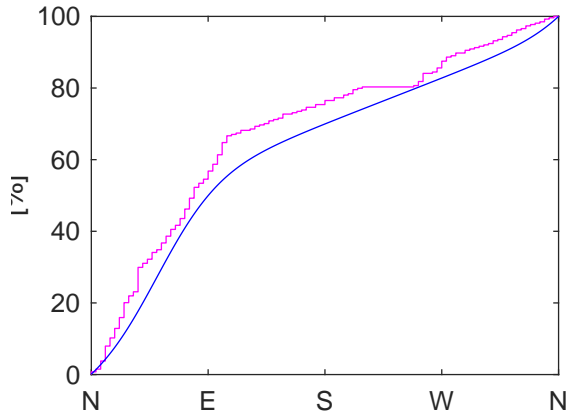
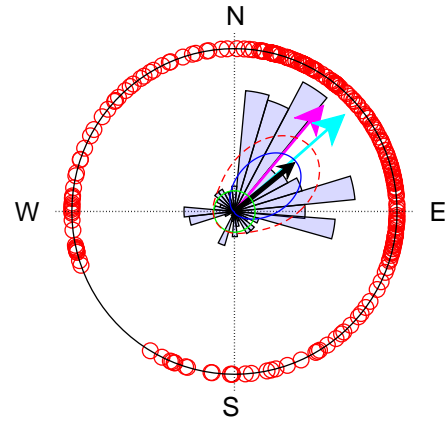
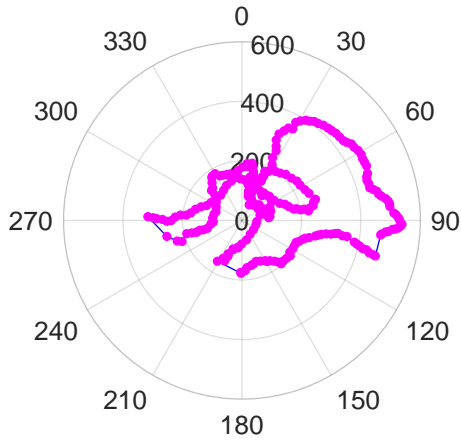
Best models= M5B (67%)
M5A (33%)

Best params: $\phi_1=51^\circ, \kappa_1=2.62$

$\lambda=0.61, \phi_2=298^\circ, \kappa_2=5.18$

$p_{\text{KS}}=0.000758$

Bee E03: angular statistics and path



n=264, 1 parts

$p_{\text{Rayleigh-NU}} = 2.3e-26$

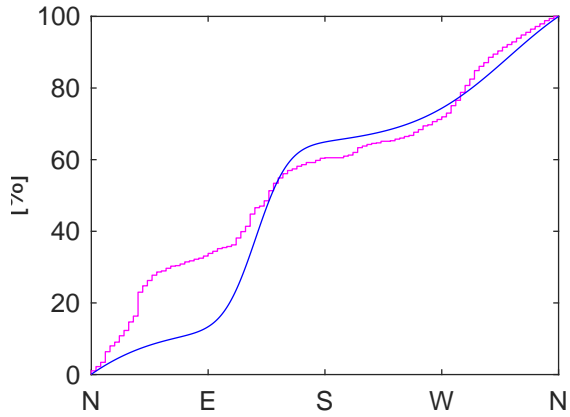
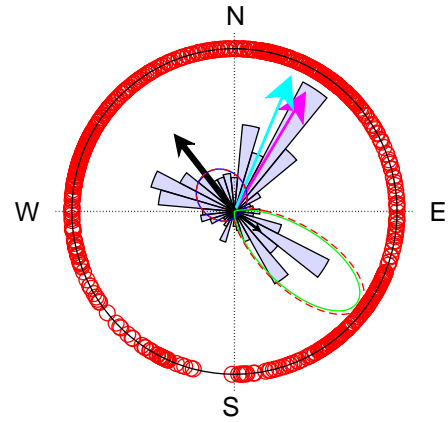
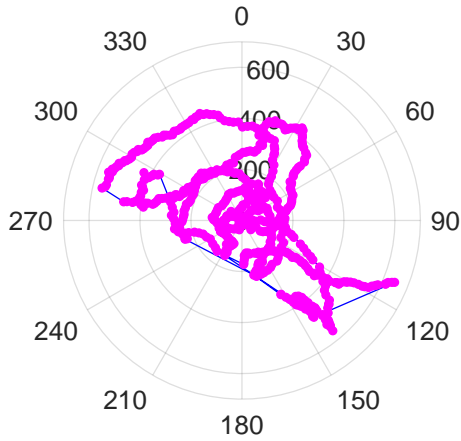
Best models= M2C (40%)
 M2B (33%)
 M5B (15%)
 M3B (12%)

Best params: $\phi_1=51^\circ$, $\kappa_1=2.63$

$\lambda=0.59$, $\phi_2=\text{NaN}^\circ$, $\kappa_2=0$

$p_{\text{KS}}=0.00668$

Bee E04: angular statistics and path



n=674, 1 parts

$p_{\text{Rayleigh-NU}} = 1.7\text{e-}12$

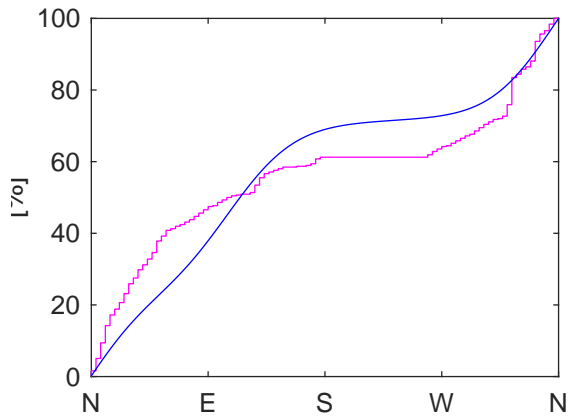
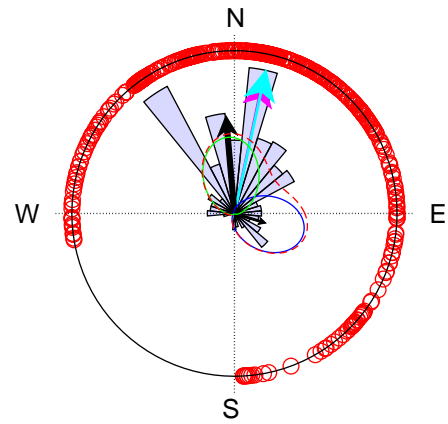
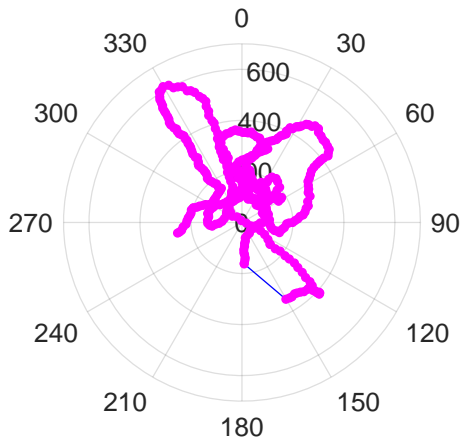
Best models= **M5B (94%)**

Best params: $\phi_1=322^\circ, \kappa_1=1.13$

$\lambda=0.75, \phi_2=127^\circ, \kappa_2=8.93$

$p_{\text{KS}}=8.1\text{e-}25$

Bee E05: angular statistics and path



n=436, 1 parts

$p_{\text{Rayleigh-NU}} = 1.1\text{e-}67$

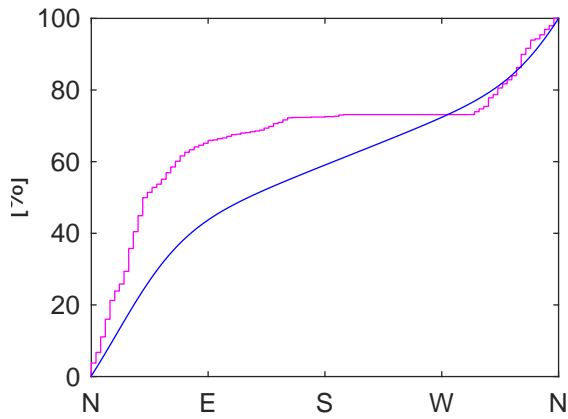
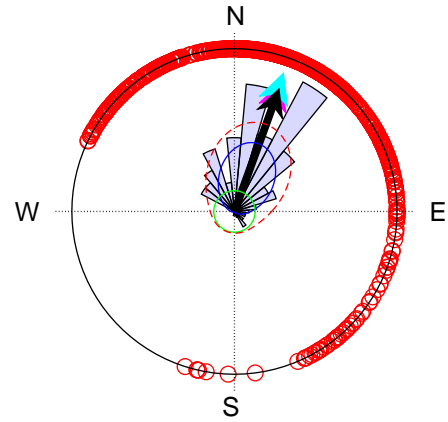
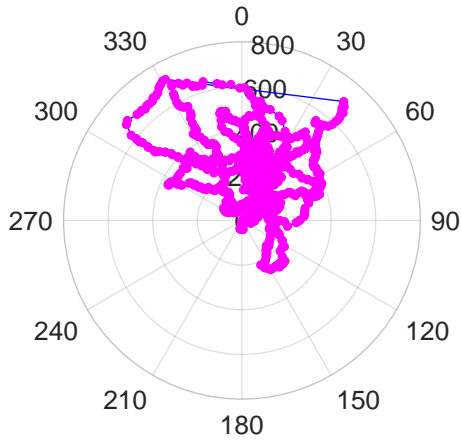
Best models= **M5B (100%)**

Best params: $\phi_1=107^\circ, \kappa_1=2.24$

$\lambda=0.25, \phi_2=355^\circ, \kappa_2=2.48$

$p_{\text{KS}}=5.33\text{e-}09$

Bee E06: angular statistics and path



n=875, 1 parts

$p_{\text{Rayleigh-NU}} = 1.9\text{e-}243$

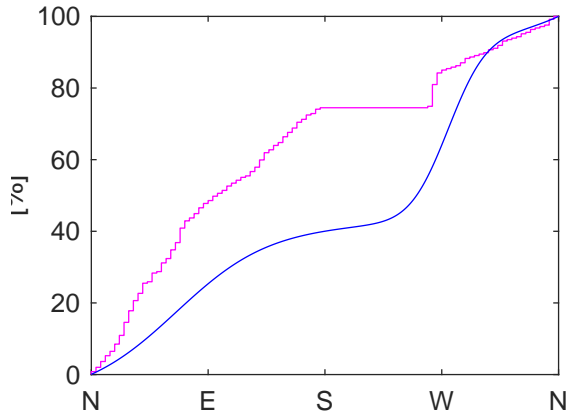
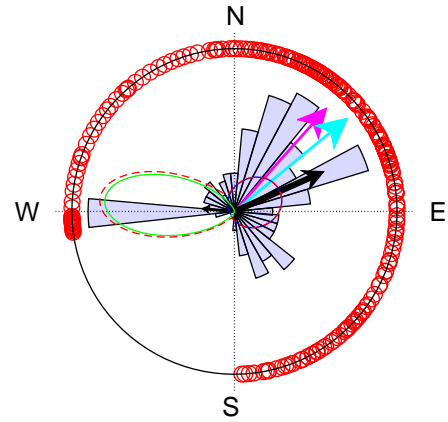
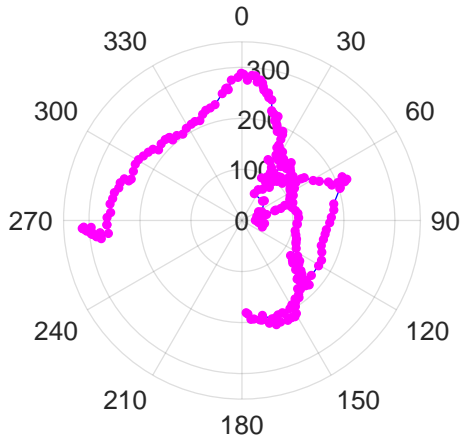
Best models= **M2A (100%)**

Best params: $\phi_1=20^\circ, \kappa_1=2.23$

$\lambda=1, \phi_2=\text{NaN}^\circ, \kappa_2=0$

$p_{\text{KS}}=2.28\text{e-}46$

Bee E07: angular statistics and path



$n=247$, 1 parts

$p_{\text{Rayleigh-NU}} = 8.3e-16$

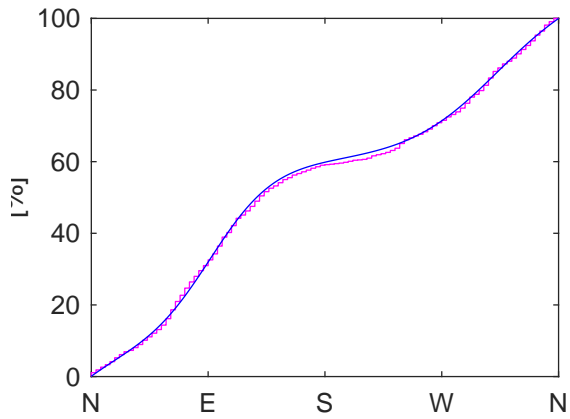
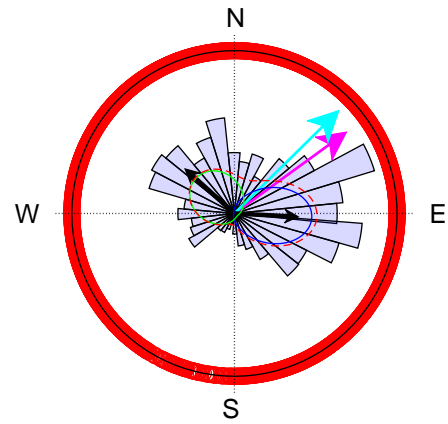
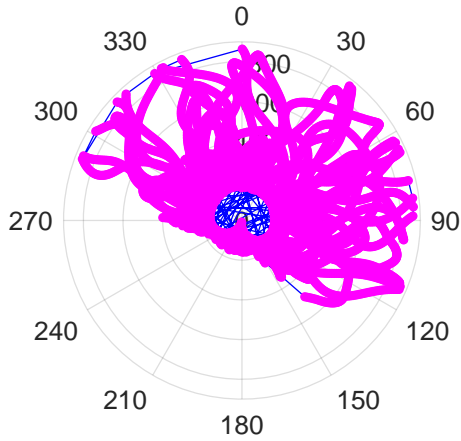
Best models= **M5B (80%)**

Best params: $\phi_1=66^\circ$, $\kappa_1=1.22$

$\lambda=0.75$, $\phi_2=275^\circ$, $\kappa_2=6.54$

$p_{\text{KS}}=1.65e-26$

Bee R01: angular statistics and path



n=7487, 1 parts

$p_{\text{Rayleigh-NU}} = 1.4\text{e-}183$

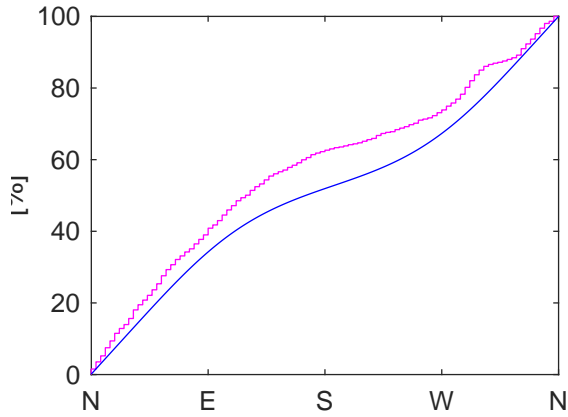
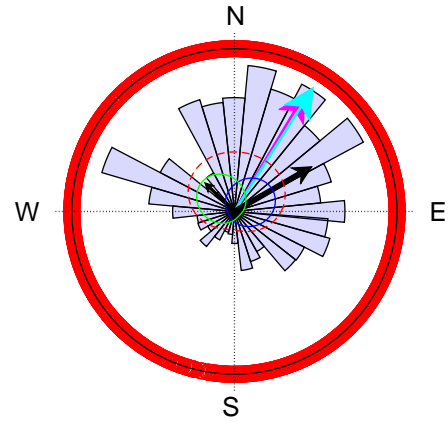
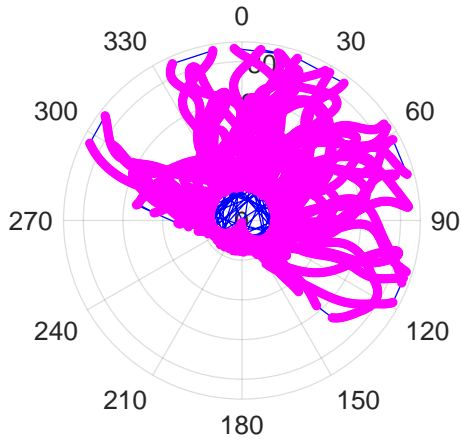
Best models= **M5B (100%)**

Best params: $\phi_1=93^\circ, \kappa_1=2.54$

$\lambda=0.49, \phi_2=312^\circ, \kappa_2=1.32$

$p_{\text{KS}}=0.00387$

Bee R02: angular statistics and path



$n=7091$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.1\text{e-}270$

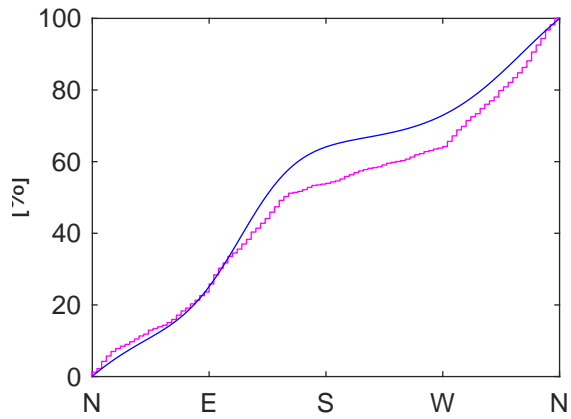
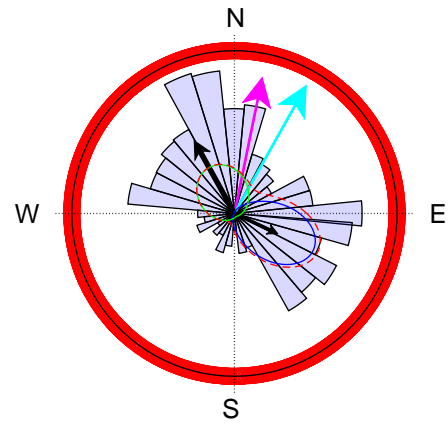
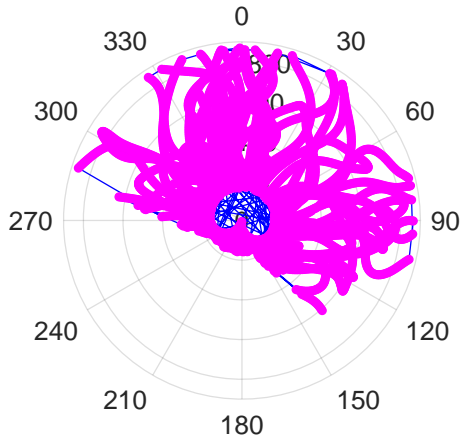
Best models= **M5A (100%)**

Best params: $\phi_1=60^\circ$, $\kappa_1=0.971$

$\lambda=0.69$, $\phi_2=314^\circ$, $\kappa_2=0.971$

$p_{\text{KS}}=2.15\text{e-}67$

Bee R03: angular statistics and path



$n=7171$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.3\text{e-}137$

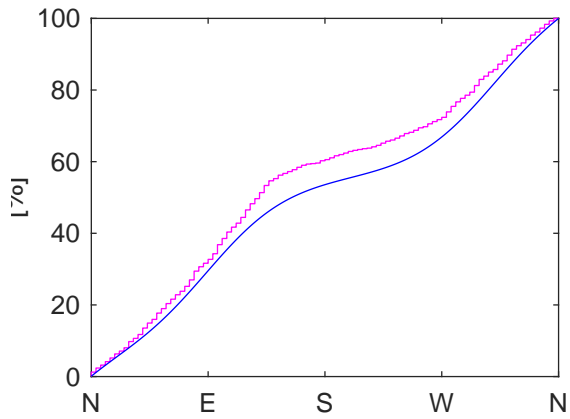
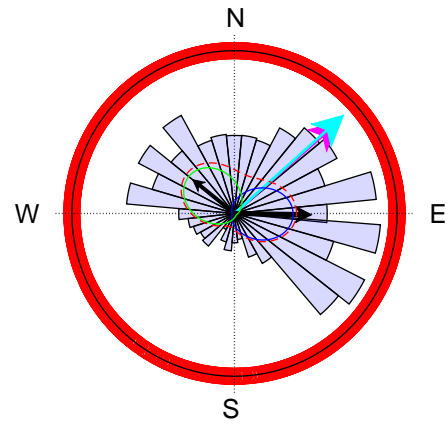
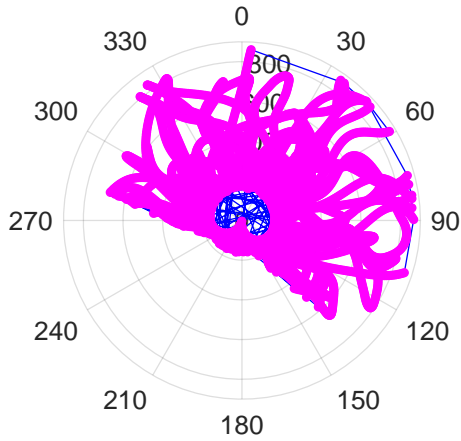
Best models= **M5B (100%)**

Best params: $\phi_1=115^\circ$, $\kappa_1=3.11$

$\lambda=0.36$, $\phi_2=331^\circ$, $\kappa_2=1.32$

$p_{\text{KS}}=4.04\text{e-}71$

Bee R04: angular statistics and path



$n=7185$, 1 parts

$p_{\text{Rayleigh-NU}} = 9.8e-167$

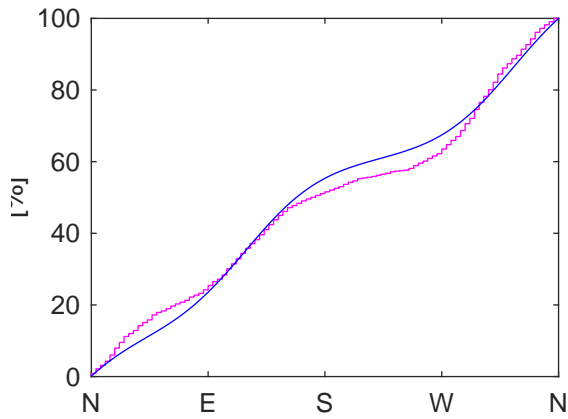
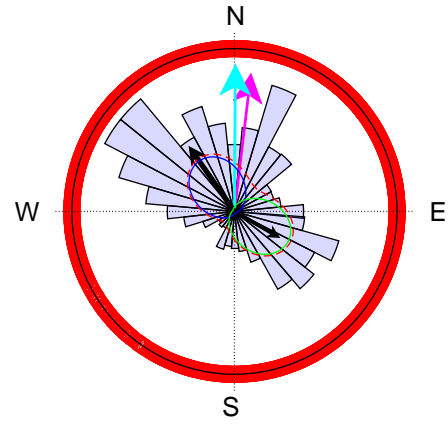
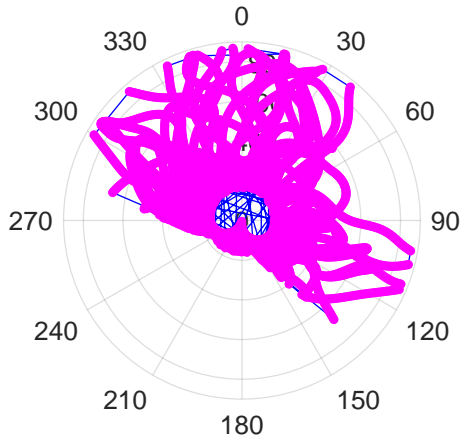
Best models= **M5A (100%)**

Best params: $\phi_1=91^\circ$, $\kappa_1=1.6$

$\lambda=0.59$, $\phi_2=309^\circ$, $\kappa_2=1.6$

$p_{\text{KS}}=3.34e-37$

Bee R05: angular statistics and path



n=7039, 1 parts

$p_{\text{Rayleigh-NU}} = 1.2\text{e-}109$

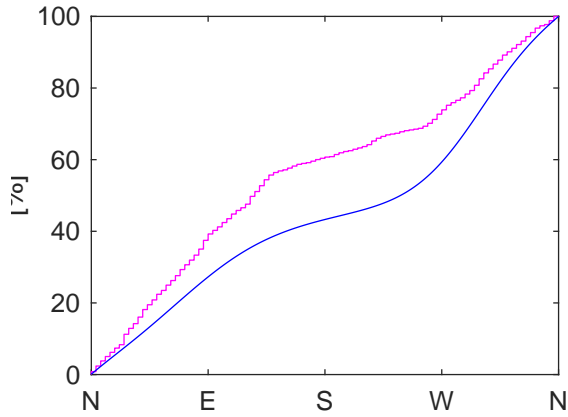
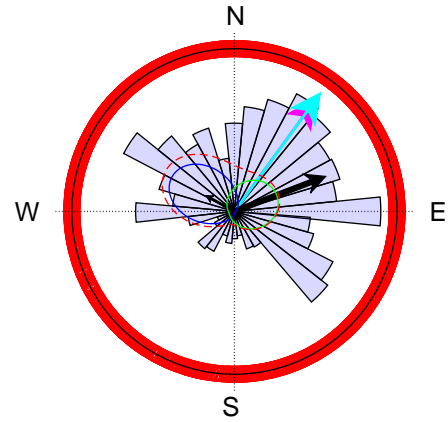
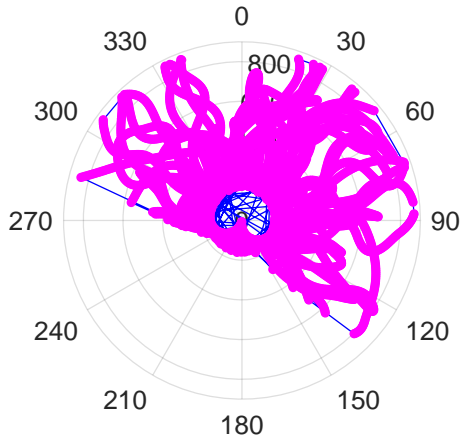
Best models= M5A (100%)

Best params: $\phi_1=325^\circ, \kappa_1=1.73$

$\lambda=0.6, \phi_2=120^\circ, \kappa_2=1.73$

$p_{\text{KS}}=2.08\text{e-}20$

Bee R06: angular statistics and path



$n=7174$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.5e-224$

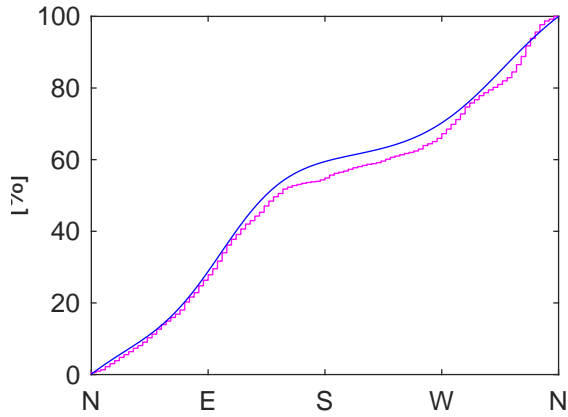
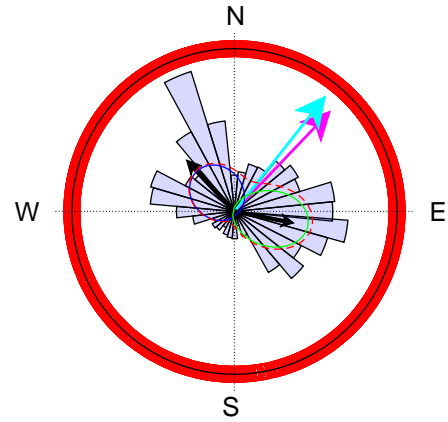
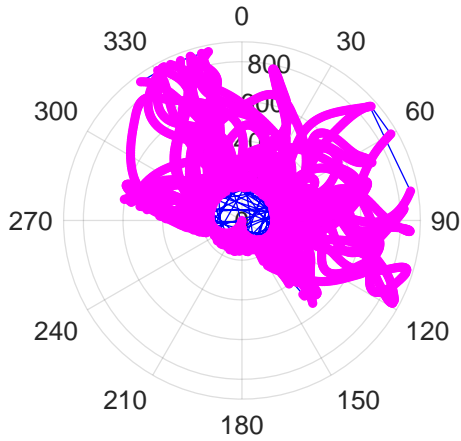
Best models= **M5B (100%)**

Best params: $\phi_1=299^\circ$, $\kappa_1=2.22$

$\lambda=0.25$, $\phi_2=69^\circ$, $\kappa_2=1.03$

$p_{\text{KS}}=5.31e-216$

Bee R07: angular statistics and path



$n=7253$, 1 parts

$p_{\text{Rayleigh-NU}} = 3.6e-138$

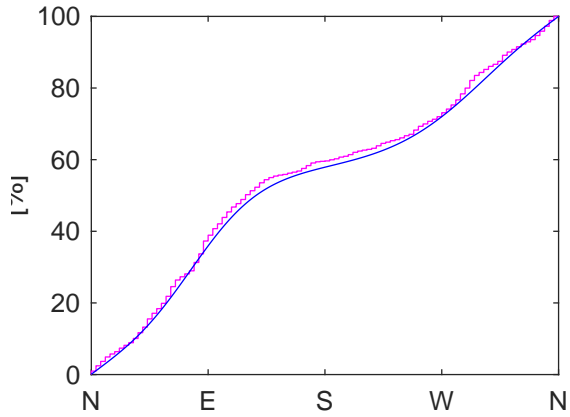
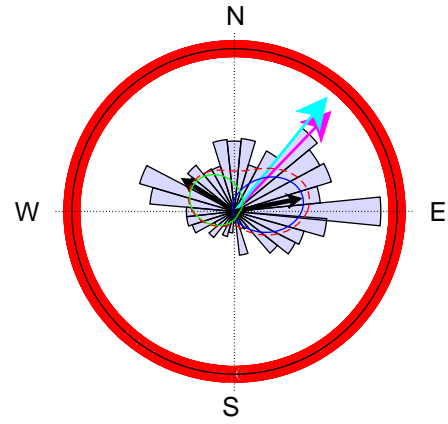
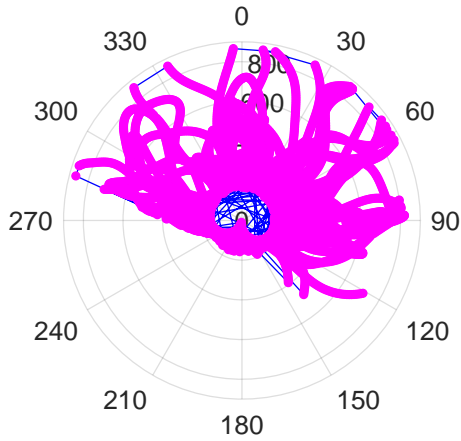
Best models= **M5B (99%)**

Best params: $\phi_1=317^\circ$, $\kappa_1=1.44$

$\lambda=0.54$, $\phi_2=101^\circ$, $\kappa_2=2.4$

$p_{\text{KS}}=1.23e-18$

Bee R08: angular statistics and path



n=6944, 1 parts

$p_{\text{Rayleigh-NU}} = 5.7\text{e-}208$

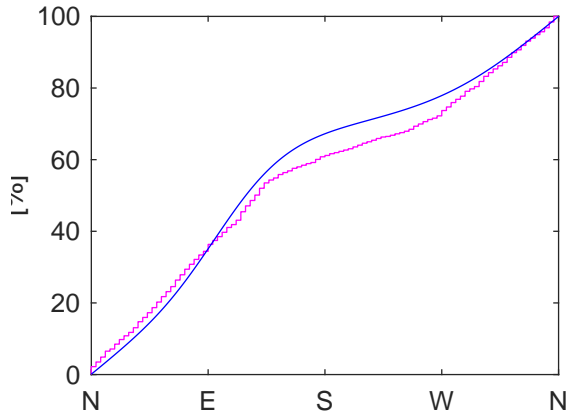
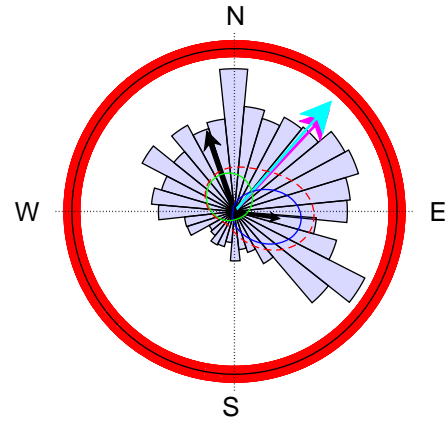
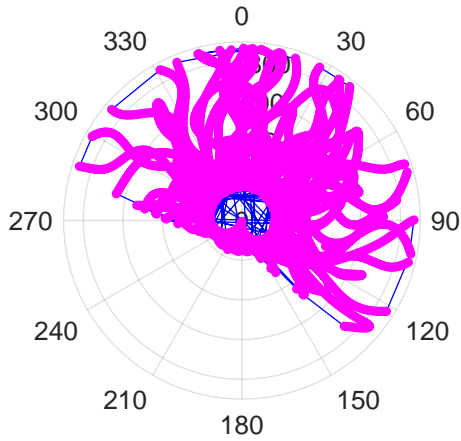
Best models= **M5B (100%)**

Best params: $\phi_1=79^\circ, \kappa_1=2.13$

$\lambda=0.52, \phi_2=302^\circ, \kappa_2=1.18$

$p_{\text{KS}}=0.000345$

Bee R09: angular statistics and path



$n=6967$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.4e-191$

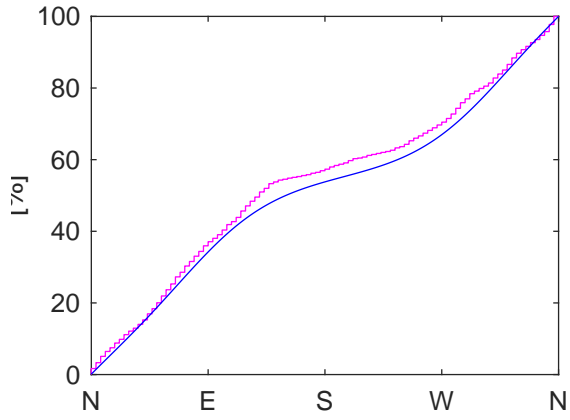
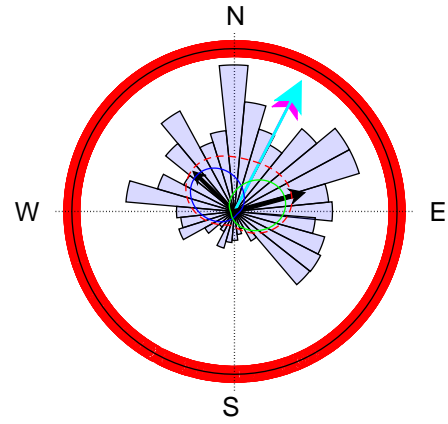
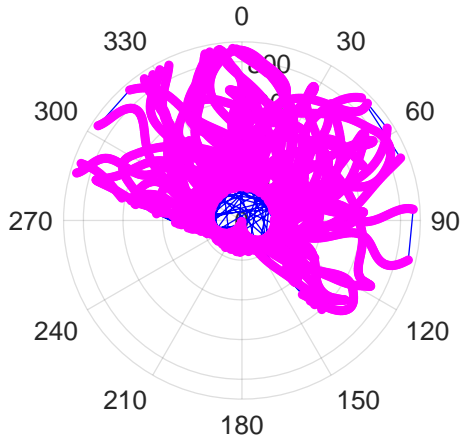
Best models= M5B (83%)
M5A (17%)

Best params: $\phi_1=99^\circ$, $\kappa_1=2$

$\lambda=0.35$, $\phi_2=341^\circ$, $\kappa_2=0.791$

$p_{\text{KS}}=5.53e-30$

Bee R10: angular statistics and path



n=7150, 1 parts

$p_{\text{Rayleigh-NU}} = 5.6e-242$

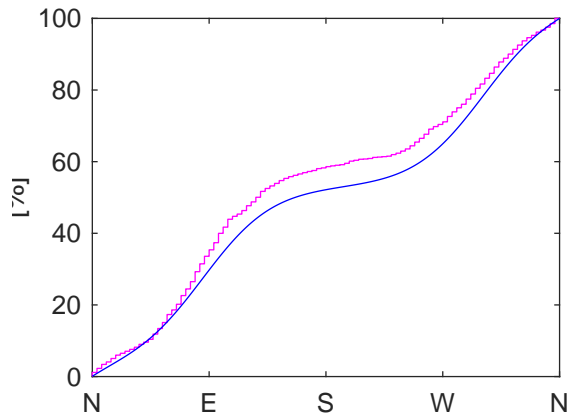
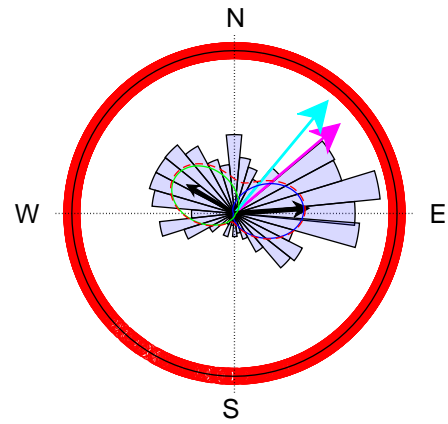
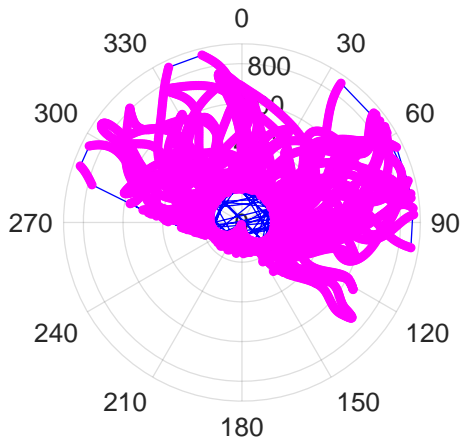
Best models= **M5A (100%)**

Best params: $\phi_1=314^\circ, \kappa_1=1.32$

$\lambda=0.44, \phi_2=75^\circ, \kappa_2=1.32$

$p_{\text{KS}}=1.09e-15$

Bee R11: angular statistics and path



$n=7575$, 1 parts

$p_{\text{Rayleigh-NU}} = 1.4e-189$

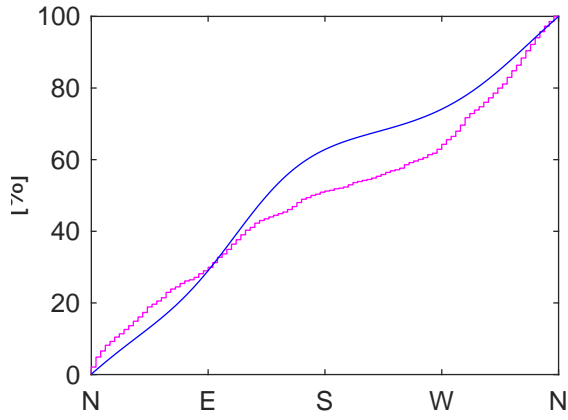
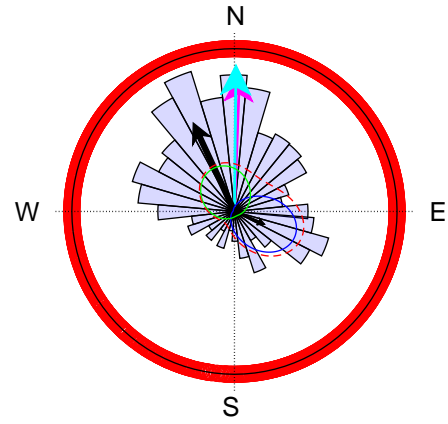
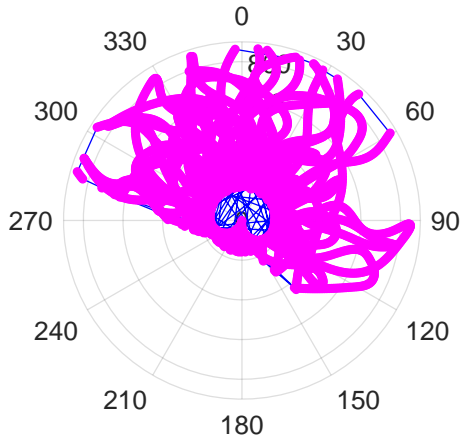
Best models= **M5A (99%)**

Best params: $\phi_1=86^\circ$, $\kappa_1=2.11$

$\lambda=0.57$, $\phi_2=301^\circ$, $\kappa_2=2.11$

$p_{\text{KS}}=3.35e-30$

Bee R12: angular statistics and path



n=6863, 1 parts

$p_{\text{Rayleigh-NU}} = 1.5\text{e-}221$

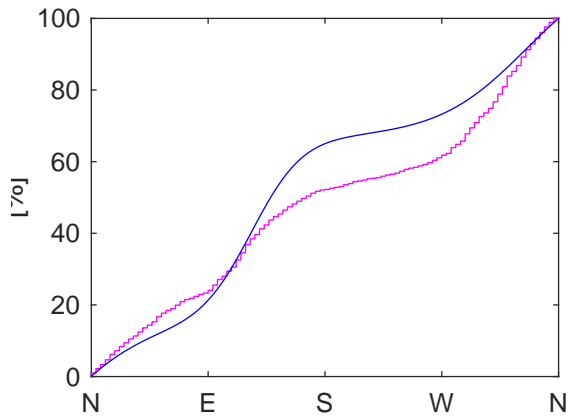
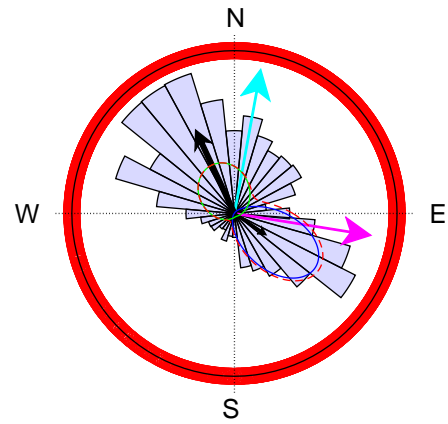
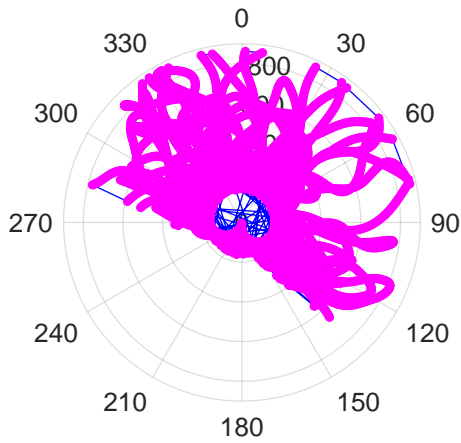
Best models= **M5B (100%)**

Best params: $\phi_1=113^\circ, \kappa_1=1.92$

$\lambda=0.25, \phi_2=335^\circ, \kappa_2=1.14$

$p_{\text{KS}}=7.61\text{e-}103$

Bee R13: angular statistics and path



n=7278, 1 parts

$p_{\text{Rayleigh-NU}} = 1.7\text{e-}159$

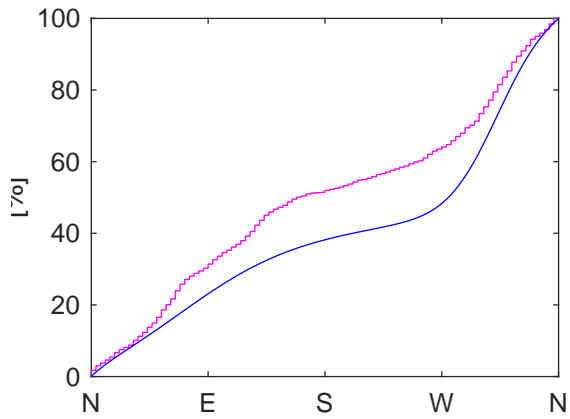
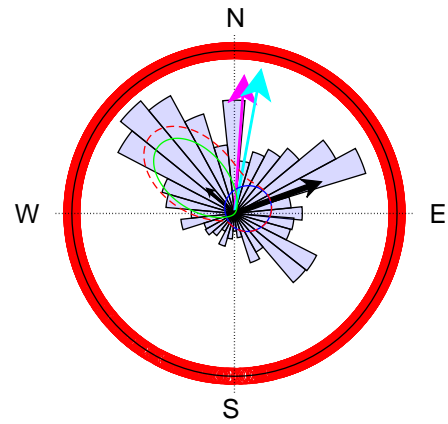
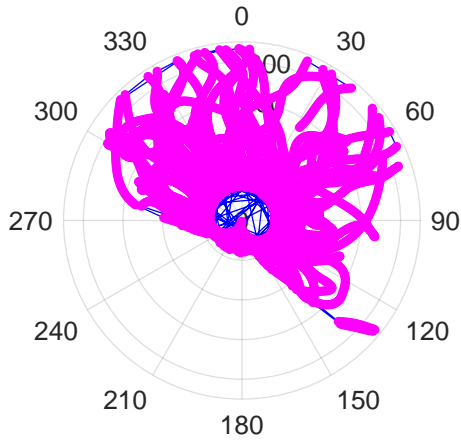
Best models= **M5B (100%)**

Best params: $\phi_1=124^\circ, \kappa_1=3.8$

$\lambda=0.29, \phi_2=335^\circ, \kappa_2=1.37$

$p_{\text{KS}}=7.62\text{e-}118$

Bee R14: angular statistics and path



n=7233, 1 parts

$p_{\text{Rayleigh-NU}} = 5.6e-211$

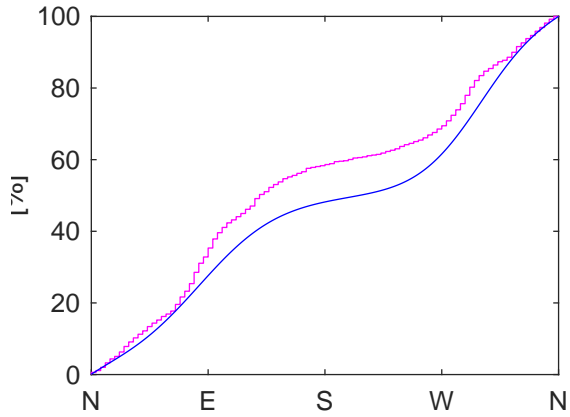
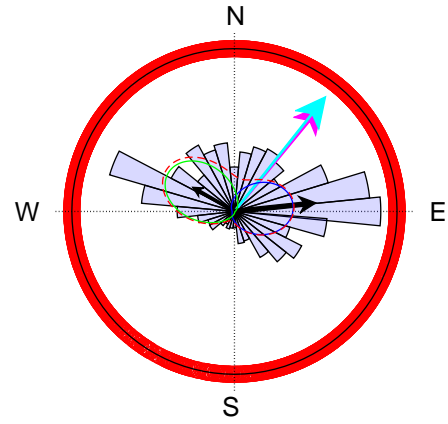
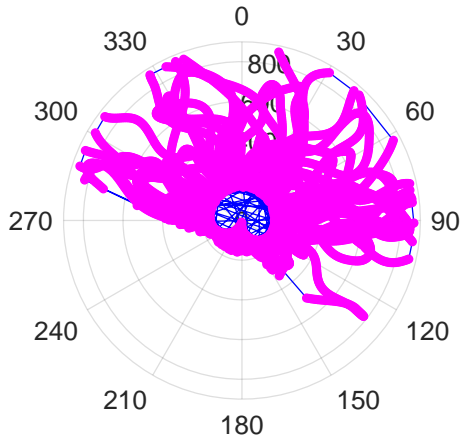
Best models= **M5B (100%)**

Best params: $\phi_1=70^\circ, \kappa_1=0.738$

$\lambda=0.71, \phi_2=312^\circ, \kappa_2=4.1$

$p_{\text{KS}}=1.46e-156$

Bee R15: angular statistics and path



n=7345, 1 parts

$p_{\text{Rayleigh-NU}} = 2.5e-176$

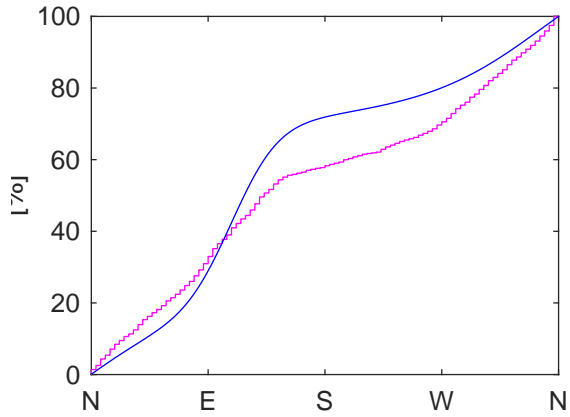
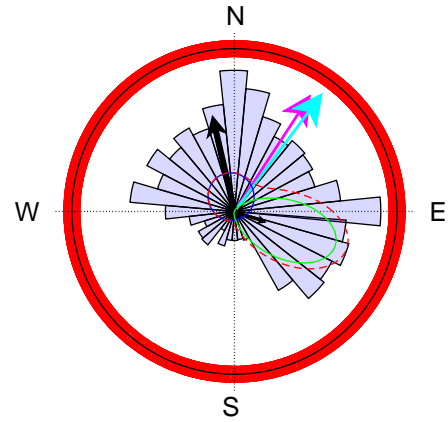
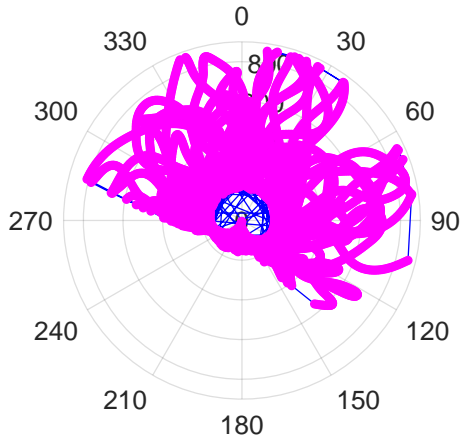
Best models= **M5B (97%)**

Best params: $\phi_1=84^\circ, \kappa_1=1.62$

$\lambda=0.63, \phi_2=300^\circ, \kappa_2=2.49$

$p_{\text{KS}}=1.56e-71$

Bee R16: angular statistics and path



n=7178, 1 parts

$p_{\text{Rayleigh-NU}} = 2.9\text{e-}187$

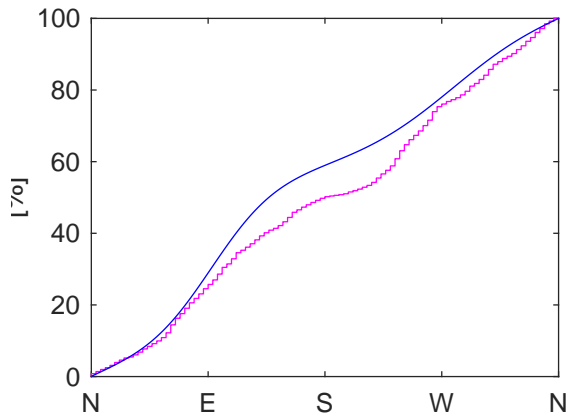
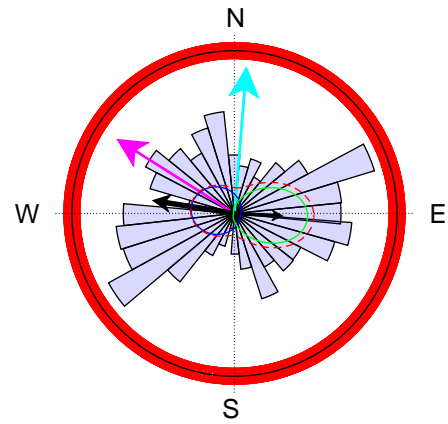
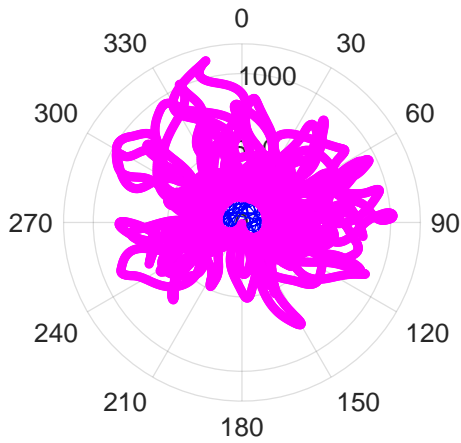
Best models= **M5B (100%)**

Best params: $\phi_1=347^\circ, \kappa_1=0.782$

$\lambda=0.75, \phi_2=109^\circ, \kappa_2=4.48$

$p_{\text{KS}}=1.82\text{e-}125$

Bee S01: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 0.00017$

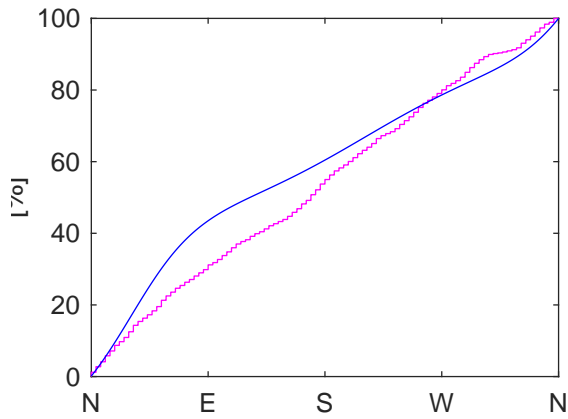
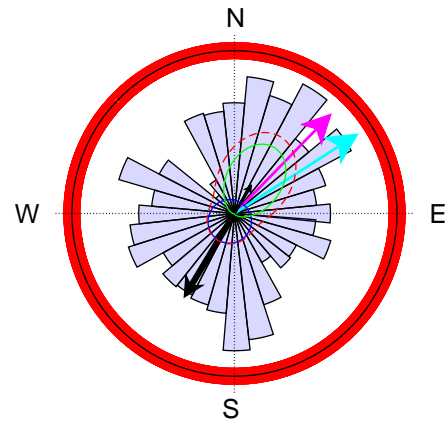
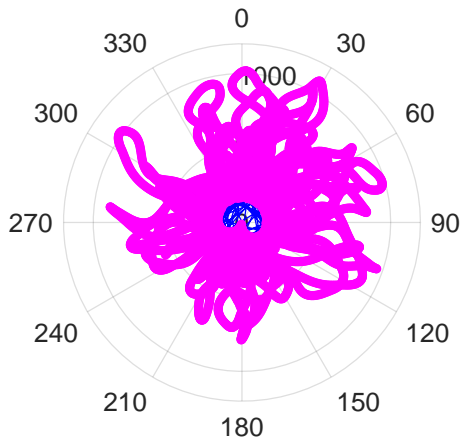
Best models= **M5B (100%)**

Best params: $\phi_1=279^\circ$, $\kappa_1=0.961$

$\lambda=0.63$, $\phi_2=93^\circ$, $\kappa_2=2.31$

$p_{\text{KS}}=3.1e-114$

Bee S02: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 0.00019$

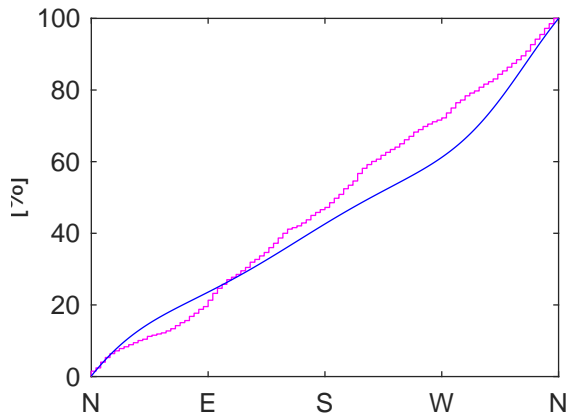
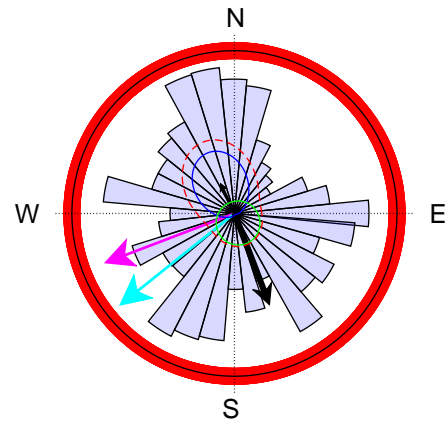
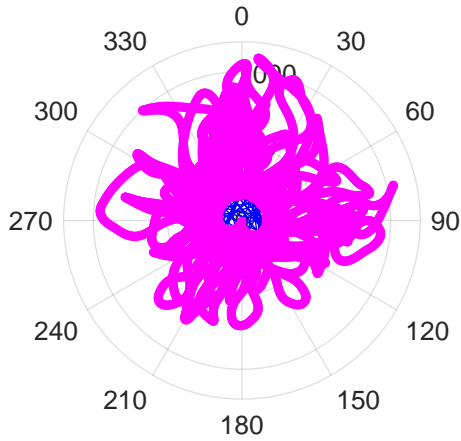
Best models= M4B (100%)

Best params: $\phi_1=211^\circ, \kappa_1=0.459$

$\lambda=0.75, \phi_2=31^\circ, \kappa_2=2.51$

$p_{\text{KS}}=1.6\text{e-}163$

Bee S03: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 0.011$

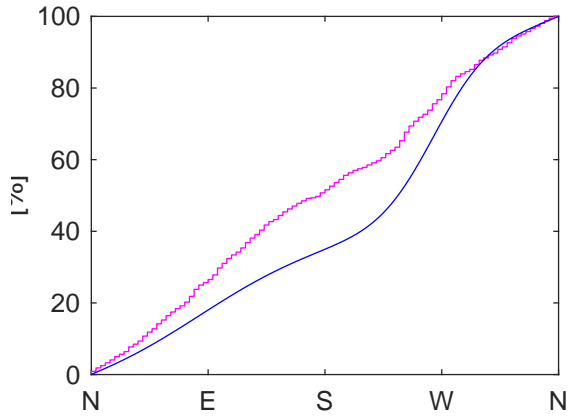
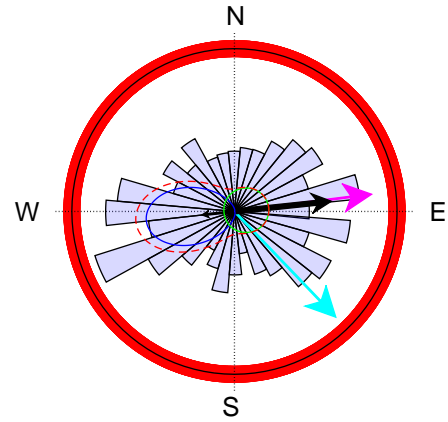
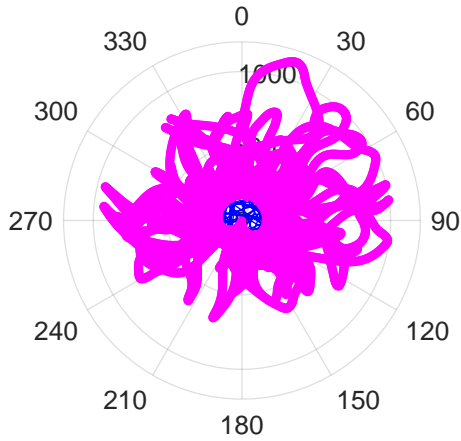
Best models= M5B (57%)
M4B (43%)

Best params: $\phi_1=335^\circ$, $\kappa_1=1.96$

$\lambda=0.25$, $\phi_2=159^\circ$, $\kappa_2=0.507$

$p_{\text{KS}}=1.88\text{e-}111$

Bee S04: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 0.32$

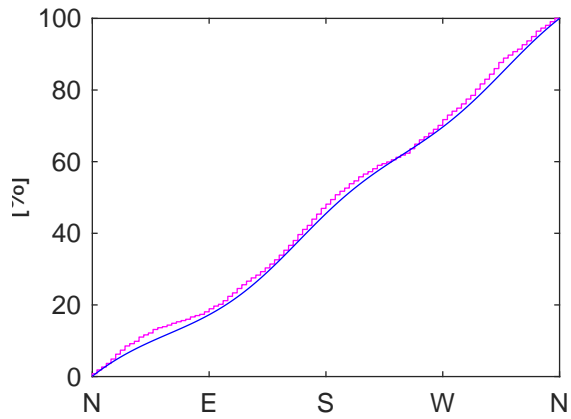
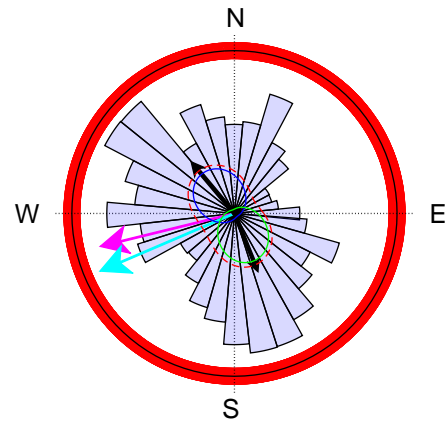
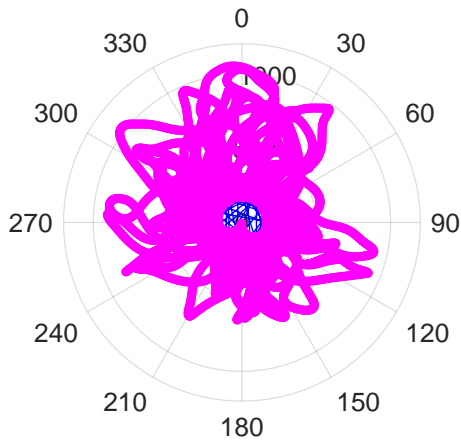
Best models= M4B (100%)

Best params: $\phi_1=264^\circ$, $\kappa_1=3.21$

$\lambda=0.25$, $\phi_2=84^\circ$, $\kappa_2=0.593$

$p_{\text{KS}}=1.41\text{e-}275$

Bee S05: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 3.7\text{e-}32$

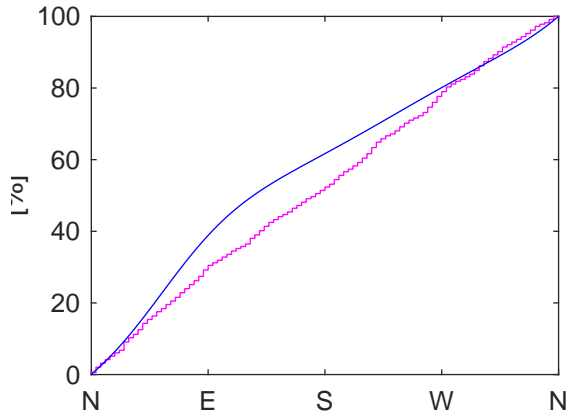
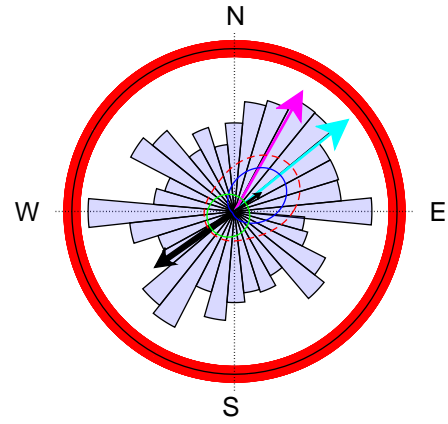
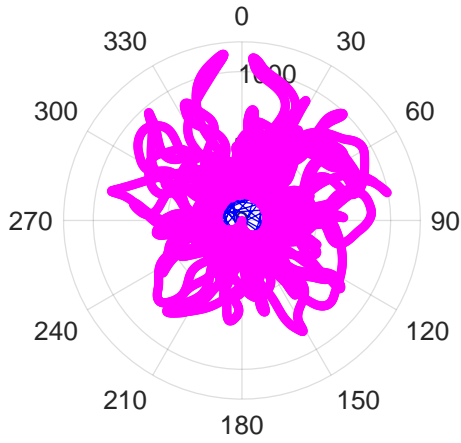
Best models= **M5A (100%)**

Best params: $\phi_1=320^\circ, \kappa_1=1.28$

$\lambda=0.52, \phi_2=158^\circ, \kappa_2=1.28$

$p_{\text{KS}}=1.64\text{e-}06$

Bee S06: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 0.0073$

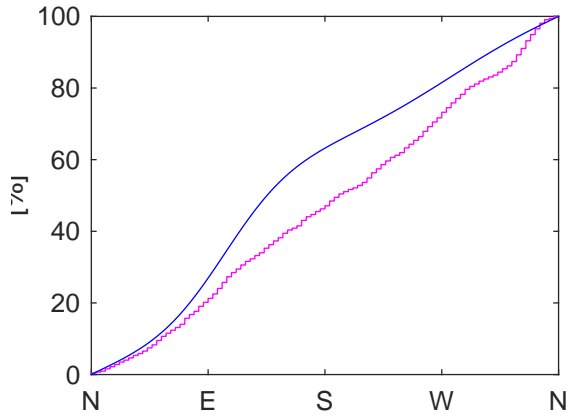
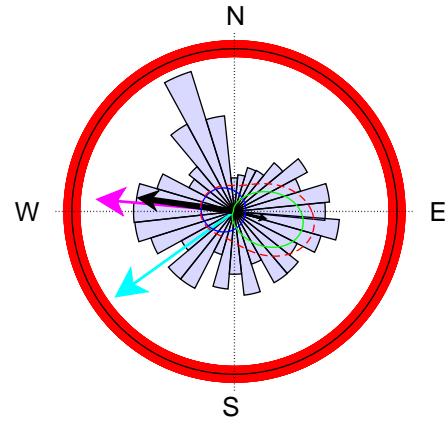
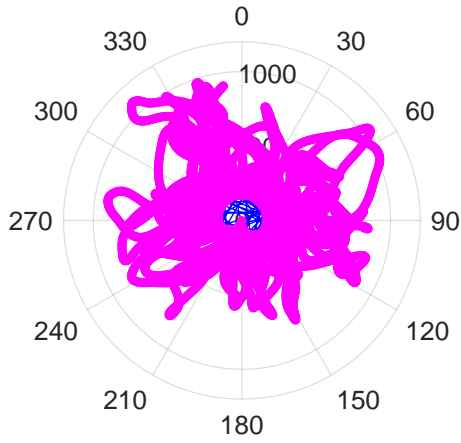
Best models= M4B (64%)
M5B (25%)

Best params: $\phi_1=55^\circ$, $\kappa_1=1.6$

$\lambda=0.25$, $\phi_2=235^\circ$, $\kappa_2=0.363$

$p_{\text{KS}}=5.35\text{e-}146$

Bee S07: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 0.0018$

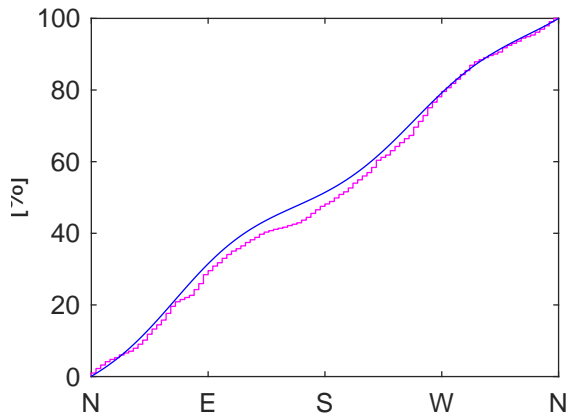
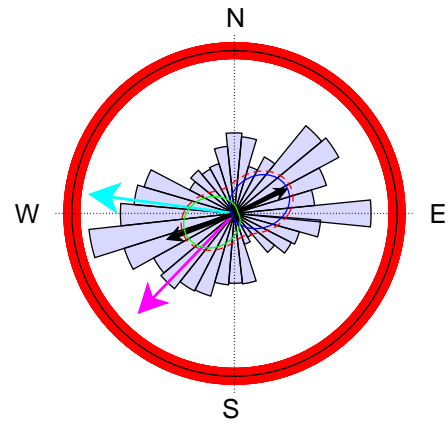
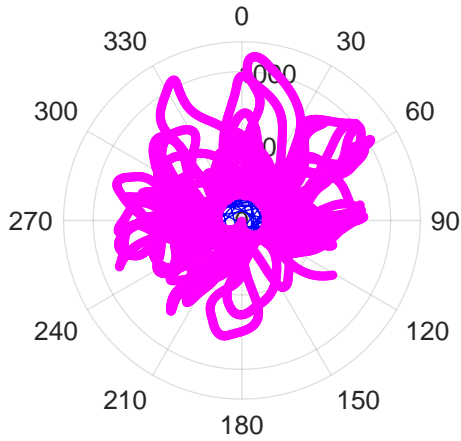
Best models= **M5B (95%)**

Best params: $\phi_1=278^\circ$, $\kappa_1=0.55$

$\lambda=0.75$, $\phi_2=103^\circ$, $\kappa_2=2.14$

$p_{\text{KS}}=2.46e-267$

Bee S08: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 1.2\text{e-}6$

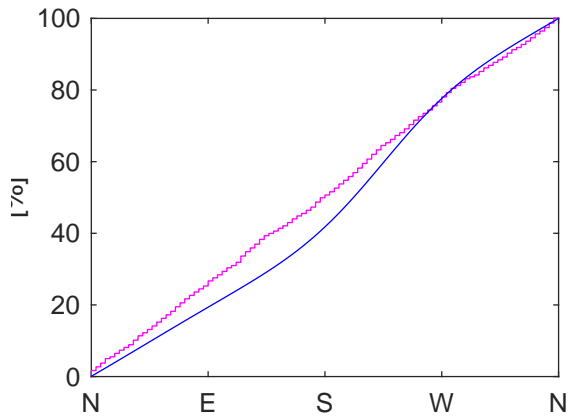
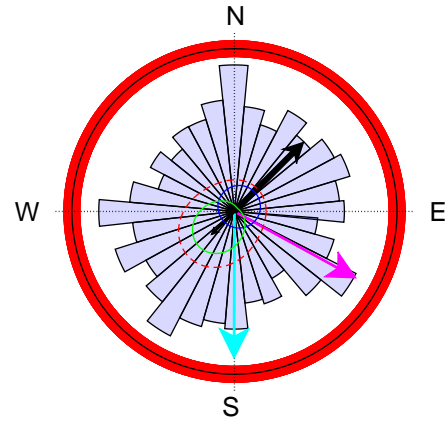
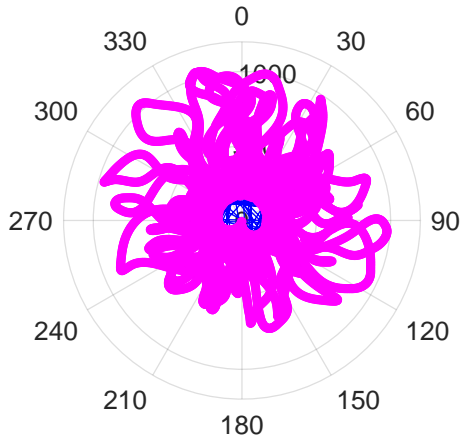
Best models= M5B (91%)

Best params: $\phi_1=65^\circ, \kappa_1=1.59$

$\lambda=0.45, \phi_2=249^\circ, \kappa_2=1.35$

$p_{\text{KS}}=6.35\text{e-}26$

Bee S09: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 0.12$

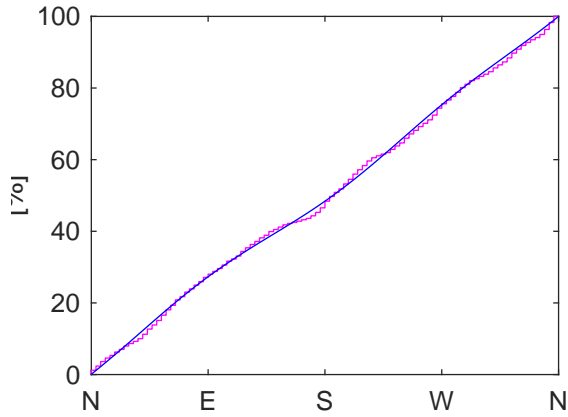
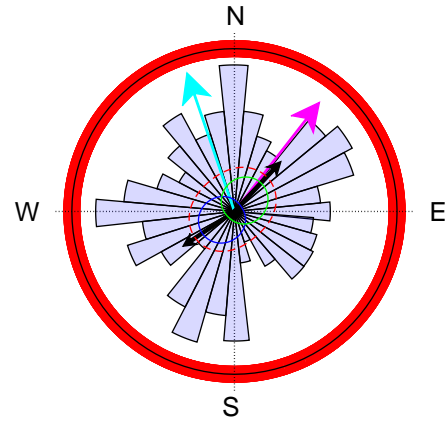
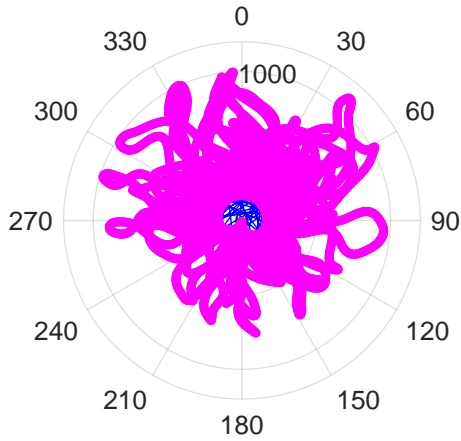
Best models= M4B (69%)

Best params: $\phi_1=45^\circ$, $\kappa_1=0.326$

$\lambda=0.75$, $\phi_2=225^\circ$, $\kappa_2=1.22$

$p_{\text{KS}}=9.7\text{e-}84$

Bee S10: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 4.1e-9$

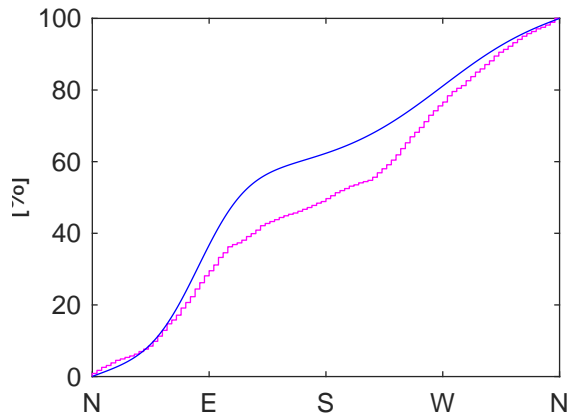
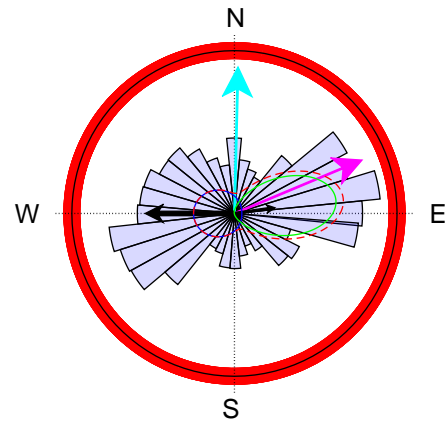
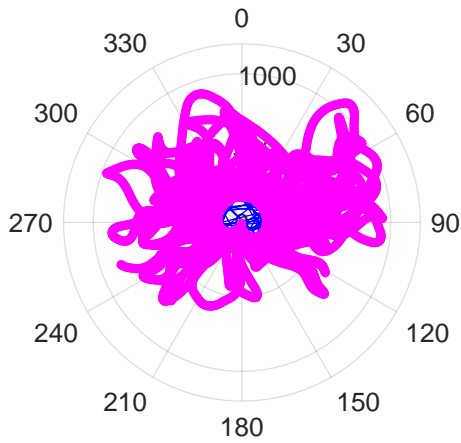
Best models= M5A (66%)
M5B (34%)

Best params: $\phi_1=236^\circ, \kappa_1=0.775$

$\lambda=0.48, \phi_2=43^\circ, \kappa_2=0.775$

$p_{\text{KS}}=3.02e-05$

Bee S11: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 5.5e-7$

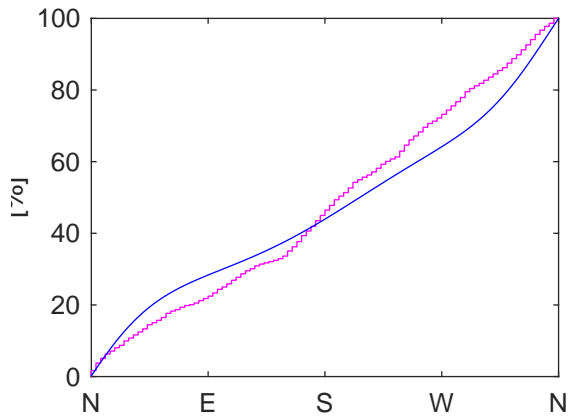
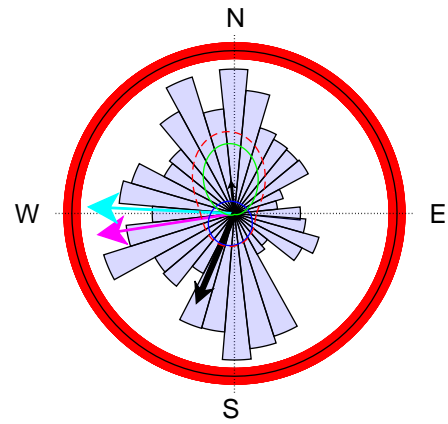
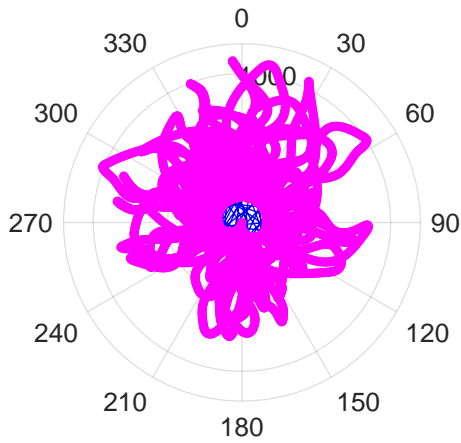
Best models= **M5B (100%)**

Best params: $\phi_1=270^\circ, \kappa_1=0.856$

$\lambda=0.69, \phi_2=82^\circ, \kappa_2=4.17$

$p_{\text{KS}}=1.63e-188$

Bee S12: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 3.6e-41$

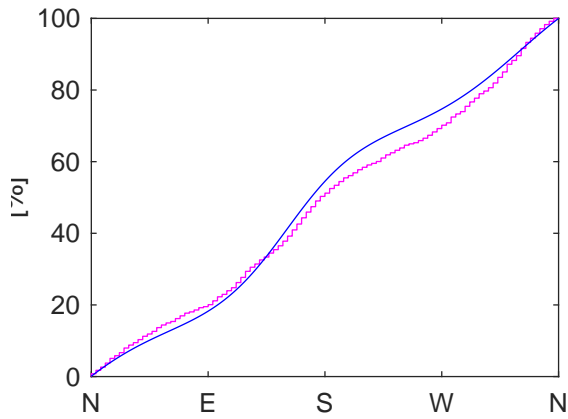
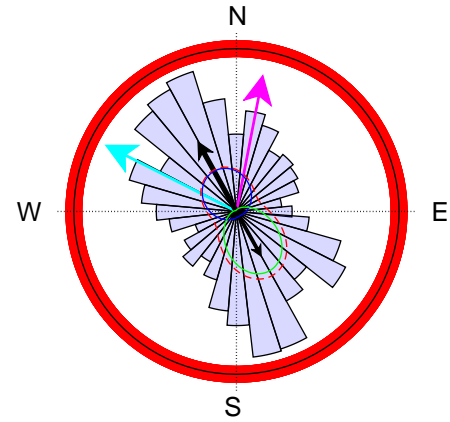
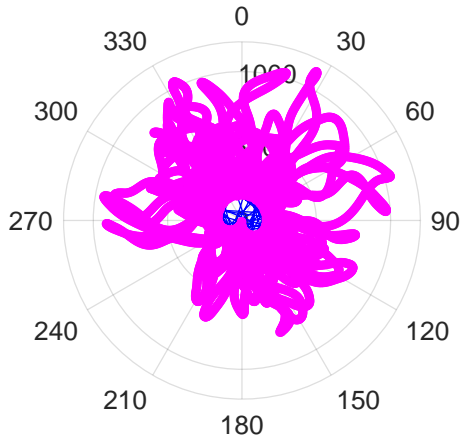
Best models= **M5B (99%)**

Best params: $\phi_1=203^\circ$, $\kappa_1=0.536$

$\lambda=0.75$, $\phi_2=354^\circ$, $\kappa_2=2.15$

$p_{\text{KS}}=6.53e-87$

Bee S13: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 0.22$

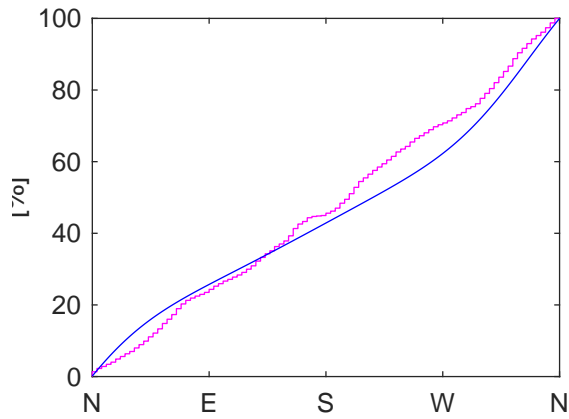
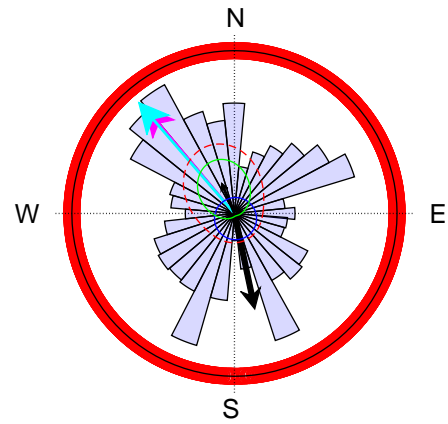
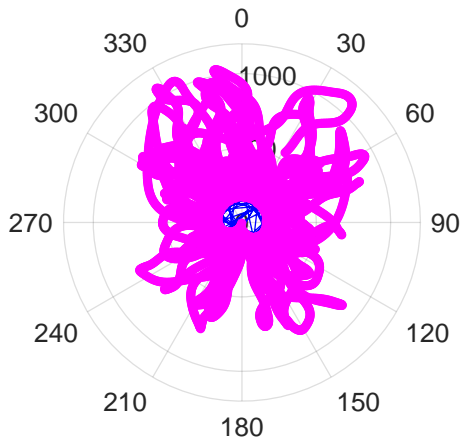
Best models= M4B (59%)
M5B (40%)

Best params: $\phi_1=331^\circ$, $\kappa_1=1.06$

$\lambda=0.61$, $\phi_2=151^\circ$, $\kappa_2=2.04$

$p_{\text{KS}}=3.57\text{e-}37$

Bee S14: angular statistics and path



$n=10002$, 1 parts

$p_{\text{Rayleigh-NU}} = 9.4e-17$

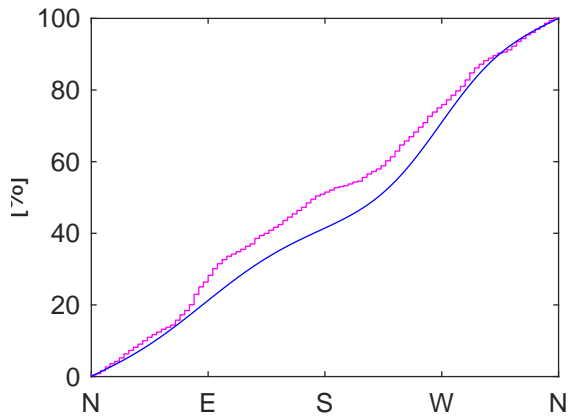
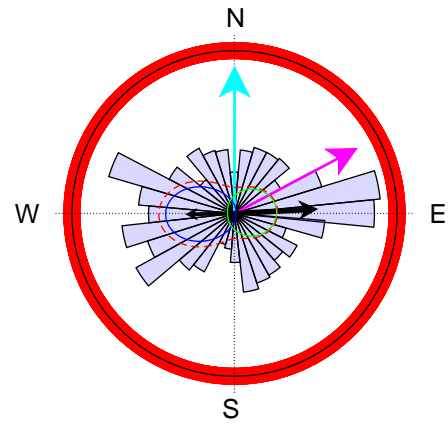
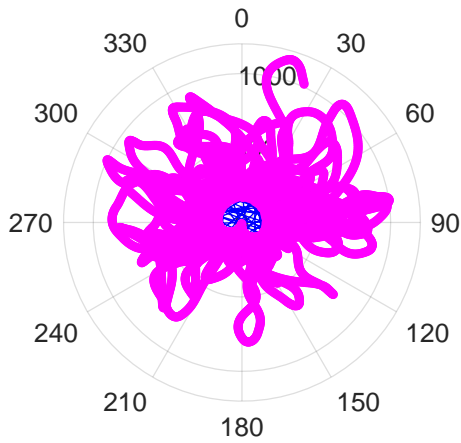
Best models= **M5B (98%)**

Best params: $\phi_1=168^\circ$, $\kappa_1=0.256$

$\lambda=0.75$, $\phi_2=337^\circ$, $\kappa_2=1.51$

$p_{\text{KS}}=5.26e-69$

Bee S15: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 0.25$

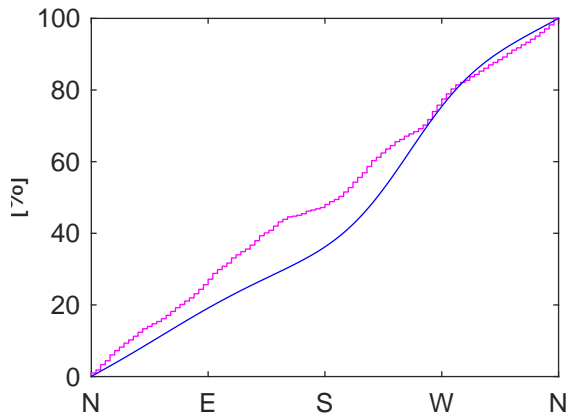
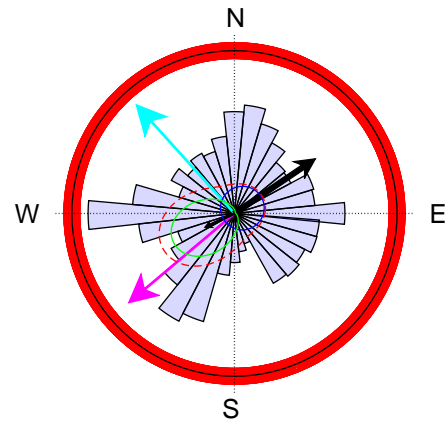
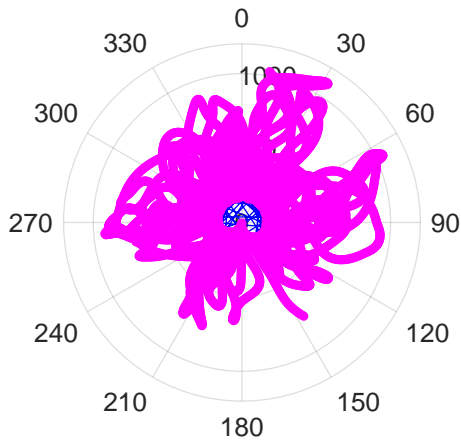
Best models= M5B (65%)
M4B (34%)

Best params: $\phi_1=269^\circ, \kappa_1=2.08$

$\lambda=0.37, \phi_2=87^\circ, \kappa_2=0.908$

$p_{\text{KS}}=2.18\text{e-}80$

Bee S16: angular statistics and path



n=10002, 1 parts

$p_{\text{Rayleigh-NU}} = 6e-5$

Best models= **M5B (100%)**

Best params: $\phi_1=56^\circ, \kappa_1=0.474$

$\lambda=0.75, \phi_2=245^\circ, \kappa_2=2.02$

$p_{\text{KS}}=6.13e-165$