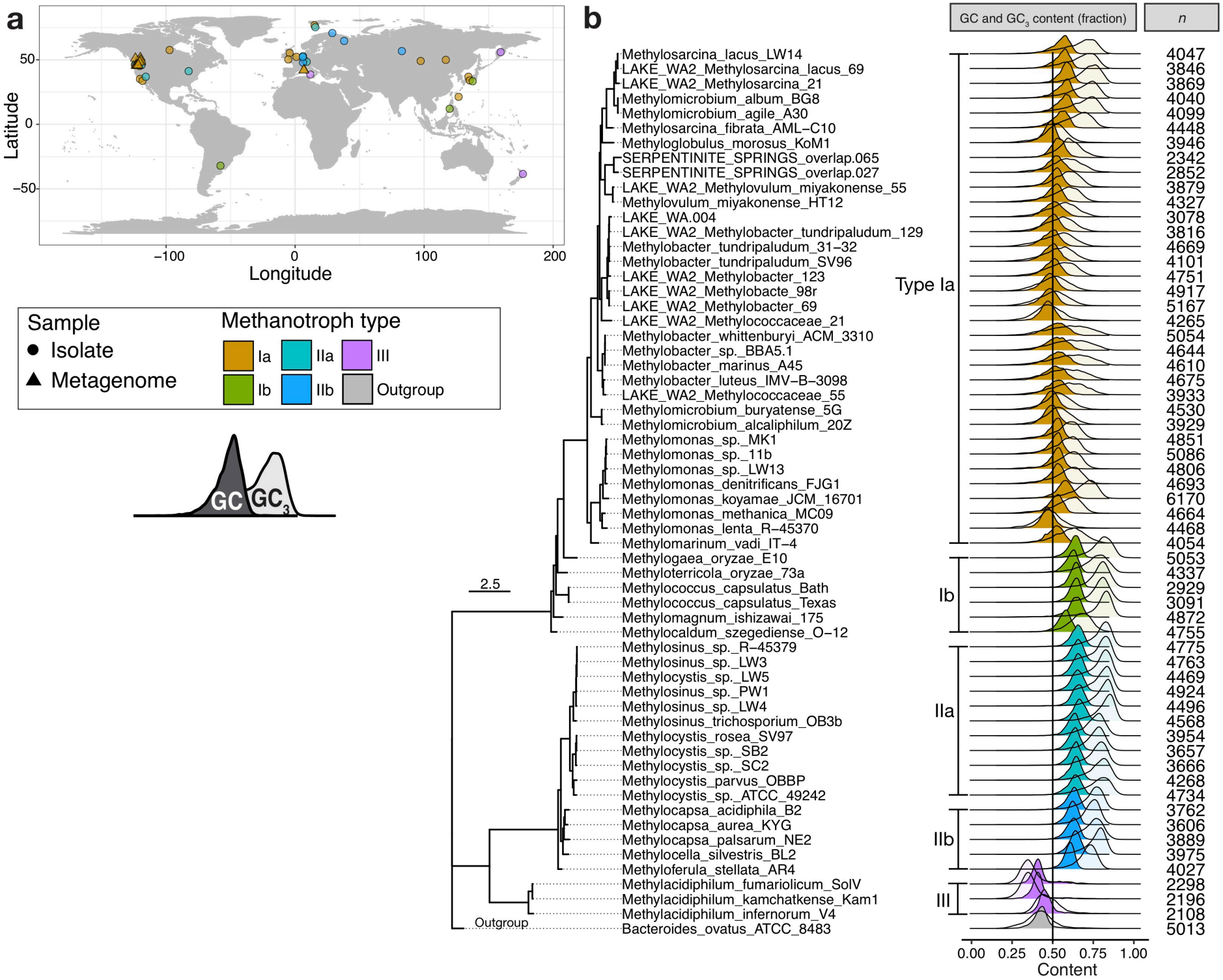
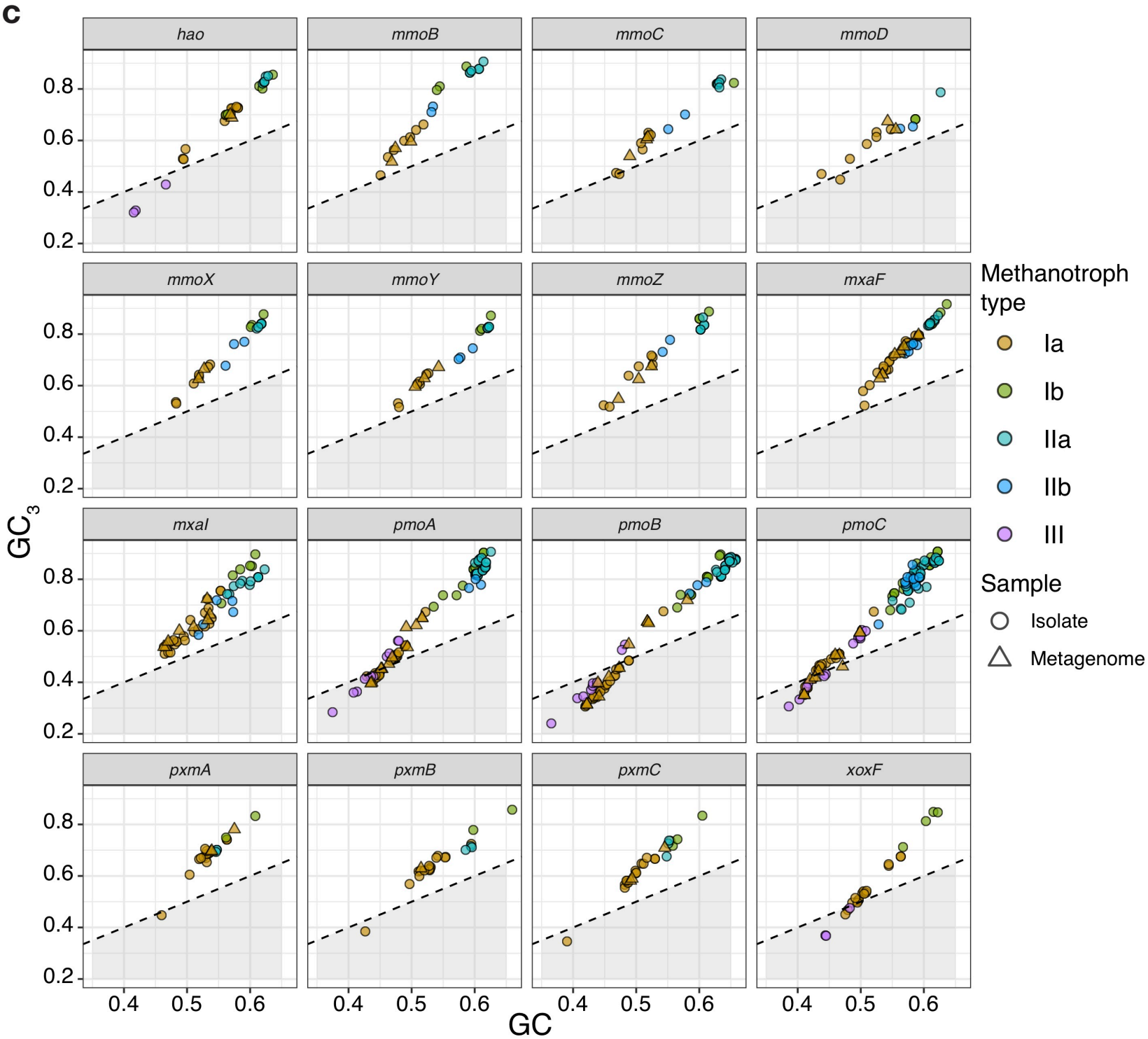

a
Latitude
Longitude
50
0
−50
−100
0
100
200
Sample
Isolate
Metagenome
Methanotroph type
Ia
IIa
III
Ib
IIb
Outgroup
GC
GC3
b
GC and GC3 content (fraction)
n
Methylosarcina_lacus_LW14
LAKE_WA2_Methylosarcina_lacus_69
LAKE_WA2_Methylosarcina_21
Methylomicrobium_album_BG8
Methylomicrobium_agile_A30
Methylosarcina_fibrata_AML−C10
Methyloglobulus_morosus_KoM1
SERPENTINITE_SPRINGS_overlap.065
SERPENTINITE_SPRINGS_overlap.027
LAKE_WA2_Methylovulum_miyakonense_55
Methylovulum_miyakonense_HT12
LAKE_WA.004
LAKE_WA2_Methylobacter_tundripaludum_129
Methylobacter_tundripaludum_31−32
Methylobacter_tundripaludum_SV96
LAKE_WA2_Methylobacter_123
LAKE_WA2_Methylobacte_98r
LAKE_WA2_Methylobacter_69
LAKE_WA2_Methylococcaceae_21
Methylobacter_whittenburyi_ACM_3310
Methylobacter_sp._BBA5.1
Methylobacter_marinus_A45
Methylobacter_luteus_IMV−B−3098
LAKE_WA2_Methylococcaceae_55
Methylomicrobium_buryatense_5G
Methylomicrobium_alcaliphilum_20Z
Methylomonas_sp._MK1
Methylomonas_sp._11b
Methylomonas_sp._LW13
Methylomonas_denitrificans_FJG1
Methylomonas_koyamae_JCM_16701
Methylomonas_methanica_MC09
Methylomonas_lenta_R−45370
Methylomarinum_vadi_IT−4
Methylogaea_oryzae_E10
Methyloterricola_oryzae_73a
Methylococcus_capsulatus_Bath
Methylococcus_capsulatus_Texas
Methylomagnum_ishizawai_175
Methylocaldum_szegediense_O−12
Methylosinus_sp._R−45379
Methylosinus_sp._LW3
Methylocystis_sp._LW5
Methylosinus_sp._PW1
Methylosinus_sp._LW4
Methylosinus_trichosporium_OB3b
Methylocystis_rosea_SV97
Methylocystis_sp._SB2
Methylocystis_sp._SC2
Methylocystis_parvus_OBBP
Methylocystis_sp._ATCC_49242
Methylocapsa_acidiphila_B2
Methylocapsa_aurea_KYG
Methylocapsa_palsarum_NE2
Methylocella_silvestris_BL2
Methyloferula_stellata_AR4
Methylacidiphilum_fumariolicum_SolV
Methylacidiphilum_kamchatkense_Kam1
Methylacidiphilum_infernorum_V4
Bacteroides_ovatus_ATCC_8483
2.5
Outgroup
Type Ia
Ib
IIa
IIb
III
4047
3846
3869
4040
4099
4448
3946
2342
2852
3879
4327
3078
3816
4669
4101
4751
4917
5167
4265
5054
4644
4610
4675
3933
4530
3929
4851
5086
4806
4693
6170
4664
4468
4054
5053
4337
2929
3091
4872
4755
4775
4763
4469
4924
4496
4568
3954
3657
3666
4268
4734
3762
3606
3889
3975
4027
2298
2196
2108
5013
0.00
0.25
0.50
0.75
1.00
Content


c
hao
mmoB
mmoC
mmoD
mmoX
mmoY
mmoZ
mxaF
mxaI
pmoA
pmoB
pmoC
pxmA
pxmB
pxmC
xoxF
0.2
0.4
0.6
0.8
0.4
0.5
0.6
GC
GC3
Methanotroph type
Ia
Ib
IIa
IIb
III
Sample
Isolate
Metagenome