

## Supplementary Data

Table S1 Top10 most relative abundant unique bacterial genera hits on genus level air, differentiated by season, in air samples

	Phylum	Class	Order	Family	Genus
<b>May</b>	Proteobacteria	Betaproteobacteria	Burkholderiales	Alcaligenaceae	Advenella
	Bacteroidetes	Cytophagia	Cytophagales	Cytophagaceae	Arcicella
	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Proteocatella
	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	Buchnera
	Actinobacteria	Actinobacteria	Actinomycetales	Pseudonocardiaceae	Saccharopolyspora
	Actinobacteria	Actinobacteria	Actinomycetales	Thermomonosporaceae	Actinoallomurus
	Proteobacteria	Gammaproteobacteria	Xanthomonadales	Xanthomonadaceae	Lysobacter
	Proteobacteria	Deltaproteobacteria	Syntrophobacterales	Syntrophobacteraceae	Desulfovirga
	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Chitinophagaceae	Vibrionimonas
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	Shinella
<b>Aug</b>	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Celeribacter
	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	Paraperlucidibaca
	Proteobacteria	Betaproteobacteria	Sulfuricellales	Sulfuricellaceae	Sulfuricella
	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	Proteus
	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Chitinophagaceae	Terrimonas
	Proteobacteria	Gammaproteobacteria	Xanthomonadales	Sinobacteraceae	Povalibacter
	Firmicutes	Clostridia	Clostridiales	Clostridiales I. S.	Sporanaerobacter
	Firmicutes	Bacilli	Bacillales	Staphylococcaceae	Jeotgalicoccus
	Firmicutes	Bacilli	Lactobacillales	Enterococcaceae	Enterococcus
	Proteobacteria	Alphaproteobacteria	Rickettsiales	Rickettsiaceae	Rickettsia
<b>Nov</b>	Firmicutes	Clostridia	Clostridiales	Clostridiales I.S.	Tissierella
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Xanthobacteraceae	Azorhizobium
	Chlamydiae	Chlamydia	Chlamydiales	Simkaniaceae	Simkania
	Firmicutes	Bacilli	Bacillales	Planococcaceae	Caryophanon
	Actinobacteria	Actinobacteria	Actinomycetales	Jiangellaceae	Jiangella
	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Limnobacter
	Firmicutes	Bacilli	Bacillales	Planococcaceae	Planococcus
	Proteobacteria	Alphaproteobacteria	Rhodospirillales	unclass Rhodospirillales	Elioraea
	Chloroflexi	Anaerolineae	Anaerolineales	Anaerolineaceae	unclass_Anaerolineaceae
	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	Citrobacter
<b>Feb</b>	Proteobacteria	Gammaproteobacteria	Xanthomonadales	Xanthomonadaceae	Metallibacterium
	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Snodgrassella
	Actinobacteria	Actinobacteria	Actinomycetales	Dermatophilaceae	uncl Dermatophilaceae
	Proteobacteria	Gammaproteobacteria	Alteromonadales	Alteromonadaceae	Alteromonas
	Verrucomicrobia	Verrucomicrobiae	Verrucomicrobiales	Verrucomicrobiaceae	Roseibacillus
	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Ulvibacter
	Proteobacteria	Gammaproteobacteria	Chromatiales	Chromatiaceae	Rheinheimera
	Firmicutes	Clostridia	Clostridiales	Ruminococcaceae	Clostridium III
	Planctomycetes	Planctomycetia	Planctomycetales	Planctomycetaceae	Singulisphaera
	Deinococcus-Thermus	Deinococci	Thermales	Thermaceae	Meiothermus
<b>common in all</b>	Firmicutes	Bacilli	Bacillales	Bacillaceae 1	Geobacillus
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Phyllobacteriaceae	Aminobacter
	Planctomycetes	Planctomycetia	Planctomycetales	Planctomycetaceae	Schlesneria
	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Burkholderia
	Cyanobacteria/Chloroplast	Chloroplast	uncl Chloroplast	Chloroplast	Chlorophyta
	Actinobacteria	Actinobacteria	Actinomycetales	Microbacteriaceae	Microbacterium
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Bradyrhizobiaceae	Rhodopseudomonas
	Acidobacteria	Acidobacteria_Gp1	uncl Acidobacteria_Gp1	uncl Acidobacteria_Gp1	Gp1
	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	uncl Enterobacteriaceae
	Planctomycetes	Planctomycetia	Planctomycetales	Planctomycetaceae	uncl Planctomycetaceae
<b>common in Aug and May</b>	Acidobacteria	Acidobacteria Gp2	uncl Acidobacteria_Gp2	uncl Acidobacteria Gp2	Gp2
	Firmicutes	Bacilli	Bacillales	Bacillaceae 1	Domibacillus
	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae	Paludibacter
	Proteobacteria	Gammaproteobacteria	Oceanospirillales	Oceanospirillaceae	unclass_Oceanospirillaceae
	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiales i. s.	Paucibacter
	Bacteroidetes	Cytophagia	Cytophagales	Cytophagaceae	Dyadobacter
	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	Moraxella
	Firmicutes	Bacilli	Lactobacillales	Aerococcaceae	Facklamia
	Actinobacteria	Actinobacteria	Actinomycetales	Dermabacteraceae	Dermabacter
	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Sphingobacteriaceae	Arcticibacter
<b>common in Nov and Feb</b>	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Bifidobacterium
	Proteobacteria	Gammaproteobacteria	Xanthomonadales	Xanthomonadaceae	Vulcaniibacterium
	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Polaribacter
	Actinobacteria	Actinobacteria	Rubrobacteriales	Rubrobacteraceae	Rubrobacter
	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Gardnerella
	Actinobacteria	Actinobacteria	Coriobacteriales	Coriobacteriaceae	Collinsella
	Proteobacteria	Betaproteobacteria	Rhodocyclales	Rhodocyclaceae	Sulfurisoma
	Proteobacteria	Gammaproteobacteria	Legionellales	Coxiellaceae	Aquicella
	Chlamydiae	Chlamydia	Chlamydiales	Parachlamydiaceae	Neochlamydia
	Planctomycetes	uncl Planctomycetes	uncl Planctomycetes	uncl Planctomycetes	uncl Planctomycetes

Table S2 Top 10 most relative abundant unique fungal genera hits on genus level, differentiated by season, in air samples

	Phylum	Class	Order	Family	Genus
<b>May</b>	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	unidentified
	Basidiomycota	Tremellomycetes	Holtermanniales	Holtermanniales I.s.	Holtermanniella
	Ascomycota	Saccharomycetes	Saccharomycetales	Saccharomycetales I.s.	Candida
	Basidiomycota	Pucciniomycetes	Pucciniales	Pucciniastraceae	Pucciniastrum
<b>Aug</b>	Ascomycota	Lecanoromycetes	Teloschistales	Teloschistaceae	unidentified
	Basidiomycota	Agaricomycetes	Agaricales	Omphalotaceae	Gymnopus
	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	Resupinatus
	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	Arrhenia
	Basidiomycota	Agaricomycetes	Polyporales	Fomitopsidaceae	Osteina
	Basidiomycota	Agaricomycetes	Thelephorales	Thelephoraceae	unidentified
	Basidiomycota	Agaricomycetes	Russulales	Stereaceae	Acanthophysellum
	Basidiomycota	Agaricomycetes	Polyporales	Polyporaceae	Rhodonia
	Ascomycota	Leotiomycetes	Helotiales	Hyaloscyphaceae	Lachnum
	Ascomycota	Leotiomycetes	Helotiales	Vibrisseaceae	unidentified
<b>Nov</b>	Ascomycota	Dothideomycetes	Pleosporales	Pleosporaceae	Curvularia
	Basidiomycota	Agaricomycetes	Corticiales	Corticaceae	Corticium
	Ascomycota	Leotiomycetes	Helotiales	Helotiaceae	Heterosphaeria
	Ascomycota	Leotiomycetes	Helotiales	Dermateaceae	Cryptosporiopsis
	Basidiomycota	Tremellomycetes	Tremellales	Cryptococcaceae	Kwoniella
	Basidiomycota	Tremellomycetes	Cystofilobasidiales	Cystofilobasidiaceae	Cystofilobasidium
	Basidiomycota	Agaricomycetes	Cantharellales	Ceratobasidiaceae	unidentified
	Ascomycota	Dothideomycetes	Dothideales	Dothideaceae	Endoconidioma
	Basidiomycota	Cystobasidiomycetes	Cystobasidiomycetes I.s.	Buckleyzymaceae	Buckleyzyma
	Basidiomycota	Tremellomycetes	Tremellales	unidentified	unidentified
<b>Feb</b>	Basidiomycota	Agaricomycetes	Auriculariales	Exidiaceae	Exidia
	Ascomycota	Eurotiomycetes	Eurotiales	Trichocomaceae	Talaromyces
	Ascomycota	Taphrinomycetes	Taphrinales	Taphrinaceae	Taphrina
	Ascomycota	Eurotiomycetes	Chaetothyriales	Herpotrichiellaceae	Sorocybe
	Ascomycota	Eurotiomycetes	Chaetothyriales	Trichomeriaceae	unidentified
	Ascomycota	Dothideomycetes	Venturiales	Symptoventuriaceae	Scolecobasidium
	Ascomycota	Leotiomycetes	Helotiales	Helotiaceae	Articulospora
	Basidiomycota	Agaricostilbomycetes	Agaricostilbales	Chionosphaeraceae	Cystobasidiopsis
	Basidiomycota	Agaricomycetes	Agaricales	Psathyrellaceae	Homophron
	Ascomycota	Arthoniomycetes	Lichenostigmatales	Phaeococcomycetaceae	Phaeococcomyces
<b>common in all</b>	unidentified	unidentified	unidentified	unidentified	unidentified
	Ascomycota	unidentified	unidentified	unidentified	unidentified
	Basidiomycota	Agaricomycetes	unidentified	unidentified	unidentified
	Basidiomycota	Agaricomycetes	Polyporales	Fomitopsidaceae	Fomitopsis
	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	Aspergillus
	Basidiomycota	Agaricomycetes	Hymenochaetales	Hymenochaetales.I.s.	Trichaptum
	Basidiomycota	Agaricomycetes	Russulales	Bondarzewiaceae	Heterobasidion
	Ascomycota	Dothideomycetes	unidentified	unidentified	unidentified

Table S3 Top 10 most relative abundant bacterial genera in air and different precipitation types

	Phylum	Class	Order	Family	Genus
<b>most abundant</b>	Firmicutes	Bacilli	Bacillales	Bacillaceae 1	Geobacillus
<b>common in all</b>	Proteobacteria	Alphaproteobacteria	Rhizobiales	Phyllobacteriaceae	Aminobacter
<b>genera</b>	Cyanobacteria/ Chloroplast	Chloroplast	unclass_Chloroplast	Chloroplast	Chlorophyta
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Bradyrhizobiaceae	Bosea
	Proteobacteria	Betaproteobacteria	Burkholderiales	Oxalobacteraceae	Janthinobacterium
	Actinobacteria	Actinobacteria	Actinomycetales	Nakamurellaceae	Nakamurella
	Proteobacteria	Alphaproteobacteria	Rhodospirillales	Acetobacteraceae	Roseomonas
	Acidobacteria	Acidobacteria_Gp1	unclass_Acidobacteria_Gp1	uncl Acidobacteria Gp1	Gp1
	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Chitinophagaceae	Ferruginibacter
	Planctomycetes	Planctomycetia	Planctomycetales	Planctomycetaceae	uncl Planctomycetaceae
<b>most abundant unique in air</b>	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	Providencia
	Proteobacteria	Gammaproteobacteria	Oceanospirillales	Oceanospirillaceae	Neptuniibacter
	Proteobacteria	Gammaproteobacteria	Xanthomonadales	Xanthomonadaceae	Metallobacterium
	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Polaribacter
	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Proteocatella
	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Celeribacter
	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Snodgrassella
	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Gardnerella
	Proteobacteria	Betaproteobacteria	Hydrogenophilaes	Hydrogenophilaceae	Tepidiphilus
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Xanthobacteraceae	Azorhizobium
<b>most abundant unique in snow</b>	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Acetoanaerobium
	Proteobacteria	Gammaproteobacteria	Aeromonadales	Aeromonadaceae	Aeromonas
	Proteobacteria	Alphaproteobacteria	Rhizobiales	Hyphomicrobiaceae	Rhomicrobium
	Firmicutes	Clostridia	Clostridiales	uncl Clostridiales	Natranaerovirga
	Firmicutes	Clostridia	Clostridiales	Clostridiaceae 1	Youngiibacter
	Firmicutes	Clostridia	Clostridiales	Clostridiales i.S	Fusibacter
	Firmicutes	Erysipelotrichia	Erysipelotrichales	Erysipelotrichaceae	uncl Erysipelotrichaceae
	Actinobacteria	Actinobacteria	Actinomycetales	Microbacteriaceae	Rhodoglobus
	Proteobacteria	Gammaproteobacteria	Oceanospirillales	Oceanospirillales i.s.	Pseudohongiella
	Actinobacteria	Actinobacteria	Actinomycetales	Beutenbergiaceae	uncl Beutenbergiaceae
<b>most abundant unique in clouds</b>	Firmicutes	Bacilli	Bacillales	Sporolactobacillaceae	Sporolactobacillus
	Proteobacteria	Epsilonproteobacteria	Campylobacterales	Helicobacteraceae	Sulfuricurvum
	Proteobacteria	Deltaproteobacteria	Desulfovibrionales	Desulfovibrionaceae	Desulfovibrio
	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Jannaschia
	Firmicutes	Clostridia	Clostridiales	Eubacteriaceae	unclass_Eubacteriaceae
	Actinobacteria	Actinobacteria	Actinomycetales	Cellulomonadaceae	Oerskovia
	Actinobacteria	Actinobacteria	Actinomycetales	Microbacteriaceae	Agromyces
	Firmicutes	Bacilli	Bacillales	Bacillaceae 2	Halobacillus
	Proteobacteria	Deltaproteobacteria	Desulfobacterales	Desulfobacteraceae	Desulforegula
	Proteobacteria	Deltaproteobacteria	Bdellovibrionales	Bacterivoracaceae	Bacterivorax
<b>most common shared in air and snow</b>	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiales i. s.	Tepidimonas
	Proteobacteria	Betaproteobacteria	Burkholderiales	Oxalobacteraceae	Herbaspirillum
	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Bifidobacterium
	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Coprococcus
	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae	Buchnera
	Proteobacteria	Gammaproteobacteria	Oceanospirillales	Oceanospirillaceae	uncl Oceanospirillaceae
	Actinobacteria	Actinobacteria	Actinomycetales	Dermatophilaceae	uncl Dermatophilaceae
	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Thalassobius
	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	Moraxella
	Bacteroidetes	Cytophagia	Cytophagales	Cytophagaceae	Emticicia
<b>most common shared in air and cloud</b>	Firmicutes	Bacilli	Bacillales	Alicyclobacillaceae	Tumblebacillus
	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Cloaciabacterium
	Firmicutes	Bacilli	Bacillales	Bacillaceae 2	Paucisalibacillus
	Firmicutes	Negativicutes	Selenomonadales	Veillonellaceae	Negativicoccus
	Proteobacteria	Betaproteobacteria	Burkholderiales	Alcaligenaceae	Advenella
	Proteobacteria	Betaproteobacteria	Gallionellales	Gallionellaceae	Gallionella
	Thaumarchaeota	uncl Thaumarchaeota	Nitrososphaerales	Nitrososphaeraceae	Nitrososphaera
	Firmicutes	Bacilli	Bacillales	Bacillaceae 2	Oceanobacillus
	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Cupriavidus
	Firmicutes	Bacilli	Lactobacillales	Aerococcaceae	Facklamia
<b>most abundant shared in air, snow and cloud</b>	Planctomycetes	Planctomycetia	Planctomycetales	Planctomycetaceae	Schlesneria
	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Burkholderia
	Actinobacteria	Actinobacteria	Actinomycetales	Microbacteriaceae	Microbacterium
	Verrucomicrobia	Spartobacteria	unclass_Spartobacteria	unclass_Spartobacteria	Spartobacteria i.s.
	Actinobacteria	Actinobacteria	Actinomycetales	Micrococccaceae	Rothia
	Proteobacteria	Betaproteobacteria	Burkholderiales	Comamonadaceae	Hydrogenophaga
	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Romboutsia
	Verrucomicrobia	Verrucomicrobiae	Verrucomicrobiales	Verrucomicrobiaceae	uncl Verrucomicrobiaceae
	Verrucomicrobia	Subdivision3	uncl Subdivision3	uncl Subdivision3	Subdivision3 i.s.s
	Acidobacteria	Acidobacteria_Gp2	uncl cidobacteria_Gp2	uncl Acidobacteria Gp2	Gp2
<b>all unique in rain or hail</b>	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Marivita
	Proteobacteria	Epsilonproteobacteria	uncl Epsilonproteobacteria	Epsilonproteobacteria	uncl Epsilonproteobacteria
	Proteobacteria	Deltaproteobacteria	Myxococcales	Cystobacteraceae	Cystobacter
	Actinobacteria	Actinobacteria	Actinomycetales	Microbacteriaceae	Naasia
	Bacteroidetes	Cytophagia	Cytophagales	Mooreiaceae	Mooreia
	Actinobacteria	Actinobacteria	Actinomycetales	Promicromonosporaceae	Promicromonosporaceae
	Proteobacteria	Alphaproteobacteria	Rhodobacterales	Rhodobacteraceae	Marivita

Table S4 Top 10 most relative abundant fungal genera in air and different precipitation types

	Phylum	Class	Order	Family	Genus	
<b>most abundant genera common in all</b> (apart from unidentified)	Ascomycota	Eurotiomycetes	Chaetothyriales	Herpotrichiellaceae	unidentified	
	Ascomycota	Eurotiomycetes	Chaetothyriales	Herpotrichiellaceae	Exophiala	
	Basidiomycota	Agaricomycetes	unidentified	unidentified	unidentified	
	Basidiomycota	Agaricomycetes	Polyporales	Fomitopsidaceae	Fomitopsis	
	Basidiomycota	Agaricomycetes	Agaricales	Strophariaceae	Hypholoma	
	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	Aspergillus	
	Basidiomycota	Tremellomycetes	Tremellales	Bulleribasidiaceae	Vishniacozyma	
	Ascomycota	Lecanoromycetes	Acarosporales	Acarosporaceae	Sarcogyne	
	Basidiomycota	Agaricomycetes	Agaricales	unidentified	unidentified	
	Ascomycota	Lecanoromycetes	Acarosporales	Acarosporaceae	Acarospora	
	<b>most abundant unique in air</b>	Basidiomycota	Agaricomycetes	Russulales	Stereaceae	unidentified
		Ascomycota	Dothideomycetes	Pleosporales	Pleosporaceae	Curvularia
		Basidiomycota	Agaricomycetes	Corticiales	Corticaceae	Corticium
Basidiomycota		Agaricomycetes	Polyporales	Fomitopsidaceae	Osteina	
Basidiomycota		Agaricomycetes	Agaricales	Tricholomataceae	Clitocybe	
Basidiomycota		Agaricomycetes	Agaricales	Strophariaceae	Kuehneromyces	
Ascomycota		Leotiomycetes	Helotiales	Dermateaceae	Oculimacula	
Basidiomycota		Agaricomycetes	Agaricales	Inocybaceae	Mallocybe	
Ascomycota		Pezizomycetes	Pezizales	Pyrenomataceae	Pseudaleuria	
Ascomycota		Sordariomycetes	Hypocreales	Hypocreales i.s.	Sporidesmium	
<b>most abundant unique in snow</b>	Ascomycota	Dothideomycetes	Myriangiales	Myriangiales i.s.	Phaeosclera	
	Basidiomycota	GS27	unidentified	unidentified	unidentified	
	Basidiomycota	Agaricomycetes	Russulales	Russulaceae	Lactifluus	
	Ascomycota	Lecanoromycetes	Caliciales	Physciaceae	Phaeophyscia	
	Ascomycota	Orbiliomycetes	Orbiliiales	Orbiliaceae	unidentified	
	Ascomycota	Pezizomycetes	Pezizales	Pyrenomataceae	Cheilymenia	
	Ascomycota	Leotiomycetes	Helotiales	Dermateaceae	Neofabraea	
	Ascomycota	Dothideomycetes	Pleosporales	Pleosporales i.s.	Mondocitrys	
	Chlorophyta	Trebouxiophyceae	Trebouxiiales	Trebouxiaceae	Trebouxia	
	Ascomycota	Leotiomycetes	Helotiales	Helotiales i.s.	Mycocarthritis	
<b>most abundant unique in clouds</b>	Ascomycota	Dothideomycetes	Pleosporales	Pleosporales i.s.	Phaeomycocentrospora	
	Ascomycota	Lecanoromycetes	Lecanorales	Pilocarpaceae	Byssolema	
	Basidiomycota	Microbotryomycetes	Sporidiobolales	Sporidiobolaceae	Rhodosporeidiobolus	
	Ascomycota	Lecanoromycetes	Trapeliales	Trapeliaceae	Trapelia	
	Ascomycota	unidentified	unidentified	unidentified	unidentified	
	Basidiomycota	Agaricomycetes	Agaricales	Agaricaceae	Lepiota	
	Ascomycota	Leotiomycetes	Helotiales	Sclerotiniaceae	Sclerotinia	
	Ascomycota	Lecanoromycetes	Lecanorales	Lecanoraceae	Protoparmeliopsis	
	Ascomycota	Lecanoromycetes	Ostropales	Stictiaceae	Cryptodiscus	
	Basidiomycota	Agaricomycetes	Polyporales	Meruliaceae	Ceraceomyces	
<b>most common shared in air and snow</b>	Basidiomycota	Agaricomycetes	Agaricales	Entolomataceae	Entoloma	
	Ascomycota	Lecanoromycetes	Lecanorales	Parmeliaceae	Protoparmelia	
	Ascomycota	Eurotiomycetes	Eurotiales	Trichocomaceae	Talaromyces	
	Ascomycota	Lecanoromycetes	Lecanorales	unidentified	unidentified	
	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	Xeromphalina	
	Basidiomycota	Agaricomycetes	Boletales	Coniophoraceae	Coniophora	
	Basidiomycota	Agaricomycetes	Polyporales	Meripilaceae	Climacocystis	
	Ascomycota	Leotiomycetes	Helotiales	Dermateaceae	Cryptosporidiopsis	
	Basidiomycota	Agaricomycetes	Polyporales	Meruliaceae	Scopuloides	
	Basidiomycota	Agaricomycetes	Hymenochaetales	Schizophoraceae	unidentified	
<b>most common shared in air and cloud</b>	Basidiomycota	Agaricomycetes	Auriculariales	Exidiaceae	Exidia	
	Basidiomycota	Agaricomycetes	Polyporales	Polyporaceae	Rhodonia	
	Basidiomycota	Agaricomycetes	Agaricales	Lycoperdaceae	Bovista	
	Ascomycota	Pezizomycetes	Pezizales	Sarcosomataceae	Pseudoplectania	
	Ascomycota	Leotiomycetes	Helotiales	Helotiales i.s.	Rhexocercosporidium	
	Ascomycota	Leotiomycetes	Helotiales	Helotiaceae	Hymenoscyphus	
	Ascomycota	Dothideomycetes	Capnodiales	Cladosporiaceae	Cladosporium	
	Ascomycota	Sordariomycetes	Sordariales	Chaetomiaceae	Dichotomopilus	
	Basidiomycota	Agaricomycetes	Agaricales	Psathyrellaceae	Coprinellus	
	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	Gamundia	
<b>most abundant shared in air, snow and cloud</b>	Basidiomycota	Wallemiomycetes	Wallemiales	Wallemiaceae	Wallemia	
	Basidiomycota	Tremellomycetes	Filobasidiales	Filobasidiaceae	Filobasidium	
	Ascomycota	Eurotiomycetes	Eurotiales	Aspergillaceae	unidentified	
	Basidiomycota	Tremellomycetes	Holtermanniales	Holtermanniales i.s.	Holtermanniella	
	Ascomycota	Saccharomycetes	Saccharomycetales	Saccharomycetales i.s.	Candida	
	Ascomycota	Saccharomycetes	Saccharomycetales	Saccharomycetales	Saccharomyces	
	Ascomycota	Saccharomycetes	Saccharomycetales	Dipodasceae	unidentified	
	Basidiomycota	Agaricomycetes	Russulales	Bondarzewiaceae	Heterobasidion	
	Basidiomycota	Agaricomycetes	Polyporales	Meruliaceae	Bjerkandera	
	Basidiomycota	Agaricomycetes	Hymenochaetales	Schizophoraceae	Xylodon	
<b>all unique in rain or hail</b>	Basidiomycota	Agaricomycetes	Agaricales	Omphalotaceae	Gymnopus	
	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	Resupinatus	
	Basidiomycota	Agaricomycetes	Russulales	Peniophoraceae	Peniophora	
	Basidiomycota	Microbotryomycetes	Microbotryales	Microbotryaceae	Microbotryum	
	Basidiomycota	Agaricomycetes	Polyporales	Fomitopsidaceae	Auriporia	
	Basidiomycota	Agaricomycetes	Polyporales	Ganodermataceae	Ganoderma	
	Ascomycota	Pezizomycetes	Pezizales	Pyrenomataceae	Trichophaea	
	Basidiomycota	Agaricomycetes	Russulales	Gloeocystidiellaceae	Laxitextum	

Table S5 ANOSIM, ADONIS, pairwise PERMANOVA for seasonal air and air vs. precipitation

	Bacteria					Fungi				
Air Time Series by Seasons	Df	F-Model	R <sup>2</sup>	p		Df	F-Model	R <sup>2</sup>	p	
ADONIS	3	2.909	0.166	<b>0.001</b>		3	5.7253	0.30757	<b>0.001</b>	
ANOSIM			0.114	<b>0.001</b>				0.5225	<b>0.001</b>	
Permanova air seasons	Df	F-Model	R <sup>2</sup>	p	adj. p	Df	F-Model	R <sup>2</sup>	p	adj. p
Feb vs. May		3.182	0.122	<b>0.001</b>	<b>0.006</b>	20	3.173	0.143	<b>0.001</b>	<b>0.006</b>
Feb vs. Aug		2.658	0.112	<b>0.001</b>	<b>0.006</b>	22	6.921	0.248	<b>0.001</b>	<b>0.006</b>
Feb vs. Nov		1.898	0.079	<b>0.023</b>	0.102	22	4.084	0.163	<b>0.001</b>	<b>0.006</b>
May vs. Aug		1.454	0.062	<b>0.038</b>	0.234	19	3.484	0.162	<b>0.001</b>	<b>0.006</b>
May vs. Nov		4.606	0.167	<b>0.001</b>	<b>0.006</b>	19	6.411	0.263	<b>0.001</b>	<b>0.006</b>
Aug vs. Nov		3.842	0.155	<b>0.001</b>	<b>0.006</b>	21	12.979	0.394	<b>0.001</b>	<b>0.006</b>
Air Time Series vs. Precipitation	Df	F-Model	R <sup>2</sup>	p		Df	F-Model	R <sup>2</sup>	p	
ADONIS	1	9.1949	0.11187	0.001		1	5.1743	0.1076	0.008	
ANOSIM			0.3004	0.001				0.06976	0.001	
Permanova air vs precipitation	Df	F-Model	R <sup>2</sup>	p	adj. p	Df	F-Model	R <sup>2</sup>	p	adj. p
Air vs. Snow	62	8.136	0.118	<b>0.001</b>	<b>0.01</b>	58	4.269	0.069	<b>0.001</b>	<b>0.01</b>
Air vs. Cloud	56	3.979	0.067	<b>0.001</b>	<b>0.01</b>	51	2.794	0.053	<b>0.001</b>	<b>0.01</b>
Air vs. Rain	49	1.311	0.027	0.084	0.84	44	1.602	0.036	<b>0.046</b>	0.46
Air vs. Hail	48	1.377	0.028	<b>0.022</b>	0.22	43	1.085	0.025	0.389	1.00
Snow vs. Cloud	23	1.349	0.058	0.114	1.00	24	1.083	0.045	0.310	1.00
Snow vs. Rain	16	2.646	0.150	<b>0.025</b>	0.25	17	2.103	0.116	<b>0.004</b>	<b>0.04</b>
Snow vs. Hail	15	2.353	0.144	0.074	0.74	16	2.269	0.064	0.459	1.00
Cloud vs. Rain	10	1.918	0.176	0.060	0.60	10	2.269	0.201	0.055	0.55
Cloud vs. Hail	9	1.539	0.161	0.229	1.00	9	1.142	0.125	0.289	1.00
Rain vs. Hail	2	0.960	0.490	1.000	1.00	2	0.972	0.493	1.000	1.00
Permanova Feb	Df	F-Model	R <sup>2</sup>	p	adj. p		F-Model	R <sup>2</sup>	p	adj. p
Air vs. Snow		4.5601	0.2115	<b>0.001</b>	<b>0.003</b>	20	4.6699	0.1972	<b>0.002</b>	<b>0.006</b>
Air vs. Cloud		1.7853	0.1295	<b>0.003</b>	<b>0.009</b>	13	2.2108	0.1555	<b>0.028</b>	0.084
Snow vs. Cloud		1.0121	0.1263	0.420	1.000	10	1.1275	0.1113	0.339	1.000
May	Df	F-Model	R <sup>2</sup>	p	adj. p		F-Model	R <sup>2</sup>	p	adj. p
Air vs. Snow		2.3074	0.1507	<b>0.018</b>	0.054	9	0.9025	0.1013	1.000	1.000
Air vs. Cloud		1.9995	0.1176	<b>0.016</b>	<b>0.048</b>	12	1.5203	0.1214	<b>0.008</b>	<b>0.024</b>
Snow vs. Cloud		0.9662	0.1945	0.566	1.000	4	0.6692	0.1823	0.600	1.000
Aug	Df	F-Model	R <sup>2</sup>	p	adj. p		F-Model	R <sup>2</sup>	p	adj. p
Air vs. Rain		1.3870	0.1119	<b>0.026</b>	0.156	12	2.0425	0.1566	<b>0.011</b>	0.066
Air vs. Snow		2.2691	0.1710	<b>0.016</b>	0.096	12	2.4817	0.1841	<b>0.017</b>	0.102
Air vs. Hail		1.5425	0.1336	0.092	0.552	11	1.3986	0.1227	0.078	0.468
Rain vs. Snow		1.2821	0.3906	0.666	1.000	3	1.6087	0.4457	0.333	1.000
Rain vs. Hail		0.9605	0.4899	1.000	1.000	2	0.9723	0.4929	1.000	1.000
Snow vs. Hail		2.0548	0.6726	0.333	1.000	2	0.7069	0.7069	0.333	1.000
Nov	Df	F-Model	R <sup>2</sup>	p	adj. p		F-Model	R <sup>2</sup>	p	adj. p
Air vs. Snow		5.5934	0.2854	<b>0.001</b>	<b>0.003</b>	14	10.1072	0.4373	<b>0.001</b>	<b>0.003</b>
Air vs. Cloud		4.5066	0.2574	<b>0.003</b>	<b>0.009</b>	13	10.7139	0.4716	<b>0.003</b>	<b>0.009</b>
Snow vs. Cloud		1.8082	0.2655	0.062	0.186	6	1.6525	0.2484	0.060	0.180

Table S6 Kruskal-Wallis test on seasonal air abundance and alpha diversity

Kruskal-Wallis air_season	~	X <sup>2</sup>	df	p
Chao1_bact		8.7592	3	0.03
Shannon_bact		13.7826	3	<0.001
Chao1_fung		31.8353	3	<0.001
Shannon_fung		31.5384	3	<0.001
16S_m3		13.2582	3	<0.001
18S_m3		36.1461	3	<0.001
16S:18S ratio		36.2621	3	<0.001

Table S7 Dunns pairwise post-hoc test for seasonal air abundance and alpha diversity, p-values were corrected for multiple testing with Bonferroni method (unadjusted values in brackets)

DunnTest pairwise comparison ~ air seasons	Bonferroni p (unadjusted p)			Bonferroni p (unadjusted p)		
	May	Aug	Nov	May	Aug	Nov
<b>Chao1_bact</b>				<b>Chao1_fung</b>		
<b>Aug</b>	1.0000 (0.2016)			<b>Aug</b>	<b>0.0000*</b> ( <b>0.000*</b> )	
<b>Nov</b>	0.1381 <b>0.0230*</b>	<b>0.0160*</b> <b>0.0027*</b>		<b>Nov</b>	<b>0.0085*</b> ( <b>0.0014*</b> )	<b>0.0177*</b> ( <b>0.0030*</b> )
<b>Feb</b>	0.9885 0.1647	0.2205 <b>0.0368*</b>	0.9235 0.1539	<b>Feb</b>	<b>0.0313*</b> ( <b>0.0052*</b> )	1.0000 (0.3053)
<b>Shannon_bact</b>				<b>Shannon_fung</b>		
<b>Aug</b>	1.0000 (0.4905)			<b>Aug</b>	<b>0.0000*</b> ( <b>0.0000*</b> )	
<b>Nov</b>	0.6013 (0.1002)	0.6580 (0.1097)		<b>Nov</b>	<b>0.0440*</b> ( <b>0.0073*</b> )	<b>0.0033*</b> ( <b>0.0006*</b> )
<b>Feb</b>	<b>0.0035*</b> ( <b>0.0006*</b> )	<b>0.0049*</b> ( <b>0.0008*</b> )	0.1482 ( <b>0.0247*</b> )	<b>Feb</b>	<b>0.0487*</b> ( <b>9.0081*</b> )	1.0000 ( <b>0.0003*</b> ) (0.4649)
<b>16S_m-3</b>				<b>18S_m-3</b>		
<b>Aug</b>	1.0000 (0.4356)			<b>Aug</b>	<b>0.0013*</b> ( <b>0.0002*</b> )	
<b>Nov</b>	0.1096 ( <b>0.0183*</b> )	0.1947 ( <b>0.0324*</b> )		<b>Nov</b>	<b>0.00000*</b> ( <b>0.0000*</b> )	0.0973 ( <b>0.0162*</b> )
<b>Feb</b>	0.3212 (0.0535)	0.2648 ( <b>0.0441*</b> )	<b>0.0008*</b> ( <b>0.0001*</b> )	<b>Feb</b>	0.1212 ( <b>0.0202*</b> )	0.4142 (0.0690)
<b>16S:18S ratio</b>						
<b>Aug</b>	<b>0.0003*</b> ( <b>0.0000*</b> )					
<b>Nov</b>	<b>0.0000*</b> ( <b>0.0000*</b> )	0.2357 ( <b>0.0393*</b> )				
<b>Feb</b>	<b>0.0117*</b> ( <b>0.0020*</b> )	0.8234 (0.1372)	<b>0.0106*</b> ( <b>0.0018*</b> )			

Table S8 Kruskal-Wallis test of air and precipitation abundance and alpha diversity

Kruskal-Wallis precipitation	~	X <sup>2</sup>	df	p
Chao1_bact		40.9905	4	<0.001
Shannon_bact		30.9896	4	<0.001
Chao1_fung		37.0995	4	<0.001
Shannon_fung		25.6239	4	<0.001
16S_m3		24.1046	4	0.001
18S_m3		14.7244	4	0.01
16S:18S ratio		35.2831	4	<0.001

Table S9 Dunns pairwise post-hoc test on air and precipitation abundance and alpha diversity, p-values were corrected for multiple testing with Bonferroni method (unadjusted values in brackets)

DunnTest pairwise comparison	Bonferroni p (unadjusted p)					Bonferroni p (unadjusted p)			
	Air_seas	Cloud	Hail	Rain		Air_seas	Cloud	Hail	Rain
-Precipitation									
Chao1_bact					Chao1_fung				
Cloud	<b>0.0027*</b> ( <b>0.0003*</b> )				Cloud	<b>0.0000*</b> ( <b>0.0000*</b> )			
Hail	1.0000 (0.1031)	1.0000 (0.4823)			Hail	0.3097 ( <b>0.0310</b> )	1.0000 (0.4032)		
Rain	1.0000 (0.1087)	<b>0.0254</b> ( <b>0.0025*</b> )	0.3834 ( <b>0.0383</b> )		Rain	1.0000 (0.3492)	0.0727 ( <b>0.0073*</b> )	0.3831 ( <b>0.0383</b> )	
Snow	<b>0.0000*</b> ( <b>0.0000*</b> )	1.0000 (0.2321)	1.0000 (0.3609)	<b>0.0038*</b> ( <b>0.0004*</b> )	Snow	<b>0.0000*</b> ( <b>0.0000*</b> )	1.0000 (0.2573)	1.0000 (0.3035)	0.1445 ( <b>0.0145*</b> )
Shannon_bact					Shannon_fung				
Cloud	<b>0.0535</b> ( <b>0.0054*</b> )				Cloud	<b>0.0090*</b> ( <b>0.0009*</b> )			
Hail	1.0000 (0.1134)	0.1914 ( <b>0.0191*</b> )			Hail	1.0000 (0.1291)	1.0000 (0.5000)		
Rain	1.0000 (0.3027)	0.4395 ( <b>0.0440</b> )	1.0000 (0.2443)		Rain	1.0000 (0.1675)	0.0925 ( <b>0.0093*</b> )	0.6637 (0.0664)	
Snow	<b>0.0000*</b> ( <b>0.0000*</b> )	1.0000 (0.1320)	<b>0.0464</b> ( <b>0.0046*</b> )	<b>0.0731</b> ( <b>0.0073*</b> )	Snow	<b>0.0001*</b> ( <b>0.0000*</b> )	1.0000 (0.4251)	1.0000 (0.4696)	0.0523 ( <b>0.0052*</b> )
16S_m-3					18S_m-3				
Cloud	<b>0.0012*</b> ( <b>0.0001*</b> )				Cloud	0.0928 ( <b>0.0093*</b> )			
Hail	0.8228 (0.0823)	9.0403 ( <b>0.004*</b> )			Hail	0.2533 ( <b>0.0253</b> )	1.0000 (0.1553)		
Rain	0.3920 ( <b>0.0392</b> )	<b>0.0036*</b> ( <b>0.0004*</b> )	1.000 ( <b>0.04564</b> )		Rain	1.0000 (0.2471)	0.3909 ( <b>0.0391</b> )	0.2195 ( <b>0.0219*</b> )	
Snow	0.0832 ( <b>0.0083*</b> )	0.3991 ( <b>0.0399</b> )	0.2216 ( <b>0.0222*</b> )	<b>0.0477</b> ( <b>0.0048*</b> )	Snow	<b>0.0375</b> ( <b>0.0038*</b> )	1.0000 (0.3680)	1.0000 (0.1179)	0.4753 ( <b>0.0475</b> )
16S:18S ratio									
Cloud	<b>0.0001*</b> ( <b>0.0000*</b> )								
Hail	0.3696 ( <b>0.0370</b> )	1.0000 (0.4280)							
Rain	0.7339 ( <b>0.0734</b> )	<b>0.0038*</b> ( <b>0.0004*</b> )	0.0992 ( <b>0.0099*</b> )						
Snow	<b>0.0002*</b> ( <b>0.0000*</b> )	1.0000 (0.1430)	1.0000 (0.2638)	<b>0.0161*</b> ( <b>0.0016*</b> )					

Table S10 Sequence statistics for bacterial genera and fungal OTU dataset

	<b>Bacteria</b>	<b>Fungi</b>
<b>#mean raw sequences per sample</b>	27680+-14202.5	17603.28+-17035.77
<b>Genera/OTUs raw dataset</b>	1590	2573
<b>Genera/OTUs after blank removal</b>	963	1912
<b>Merged on genus level</b>		603

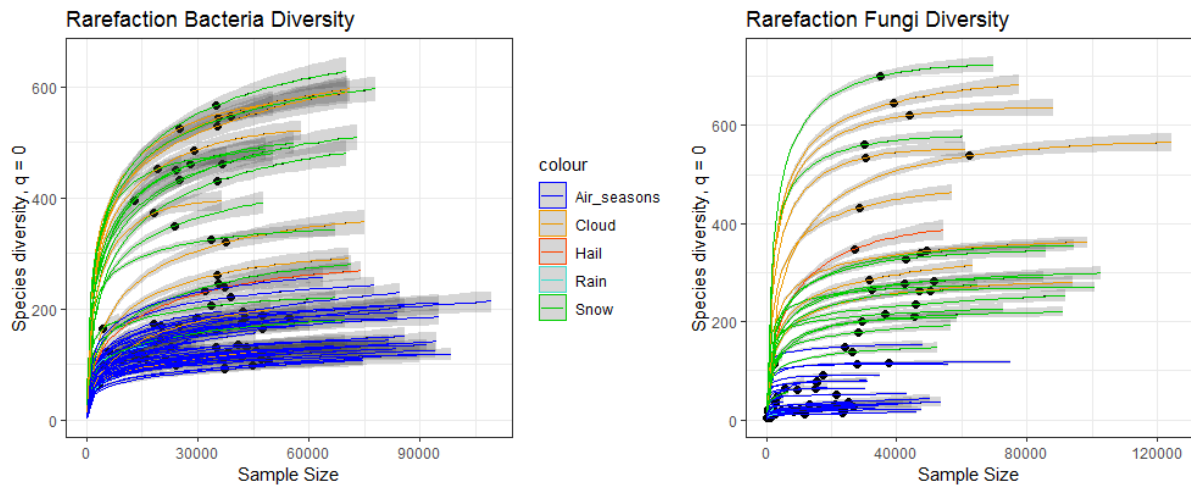


Figure S1 Rarefaction curves for bacterial and fungal dataset



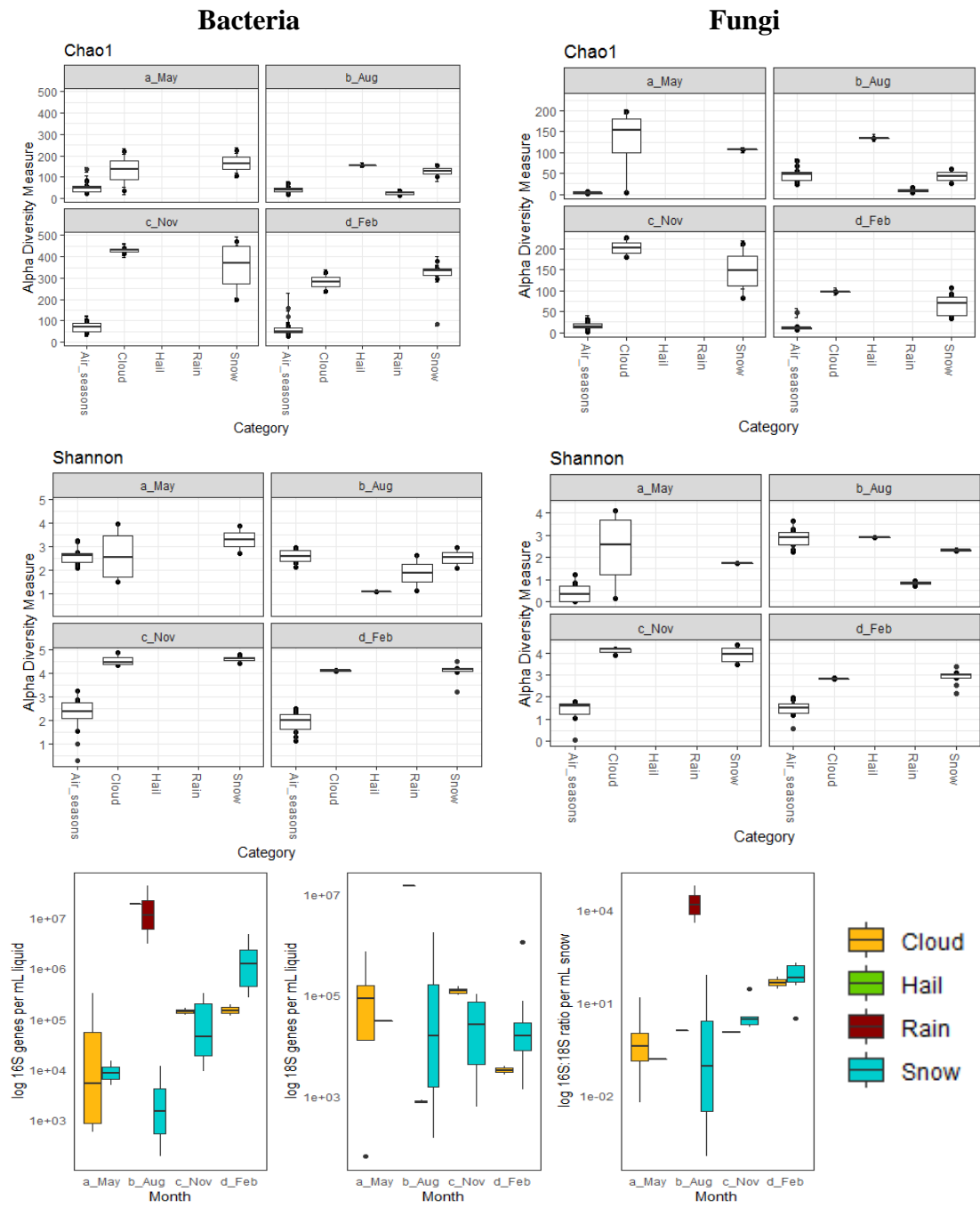


Figure S2 Alpha diversity and abundance for air and precipitation by season

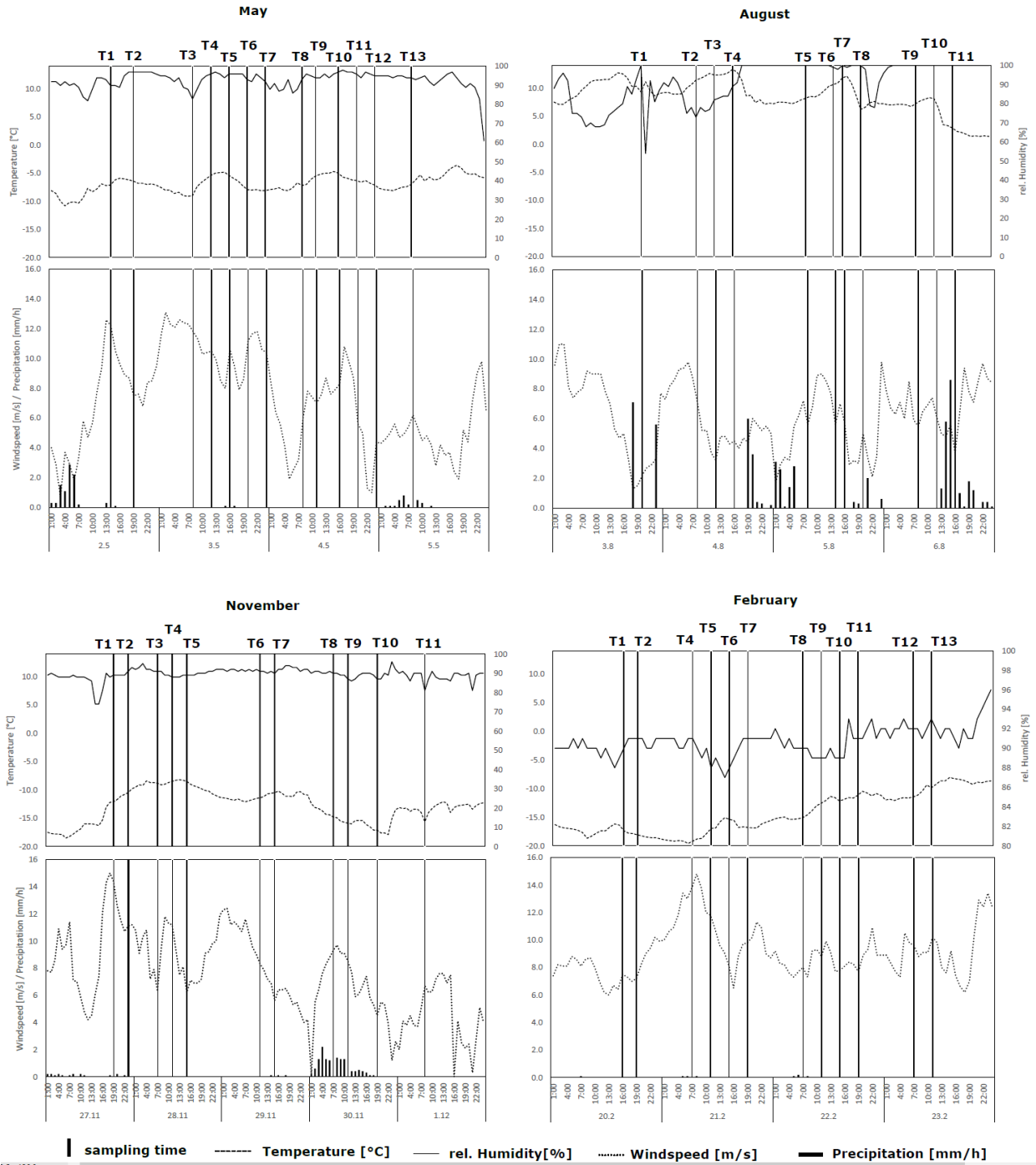


Figure S3 Mean meteorological values of temperature (dashed line), rel.humidity (continuous line), windspeed (dotted line) and precipitation (bars) for the sample periods derived from hourly values, vertical lines indicate sample times (source: ZAMG)

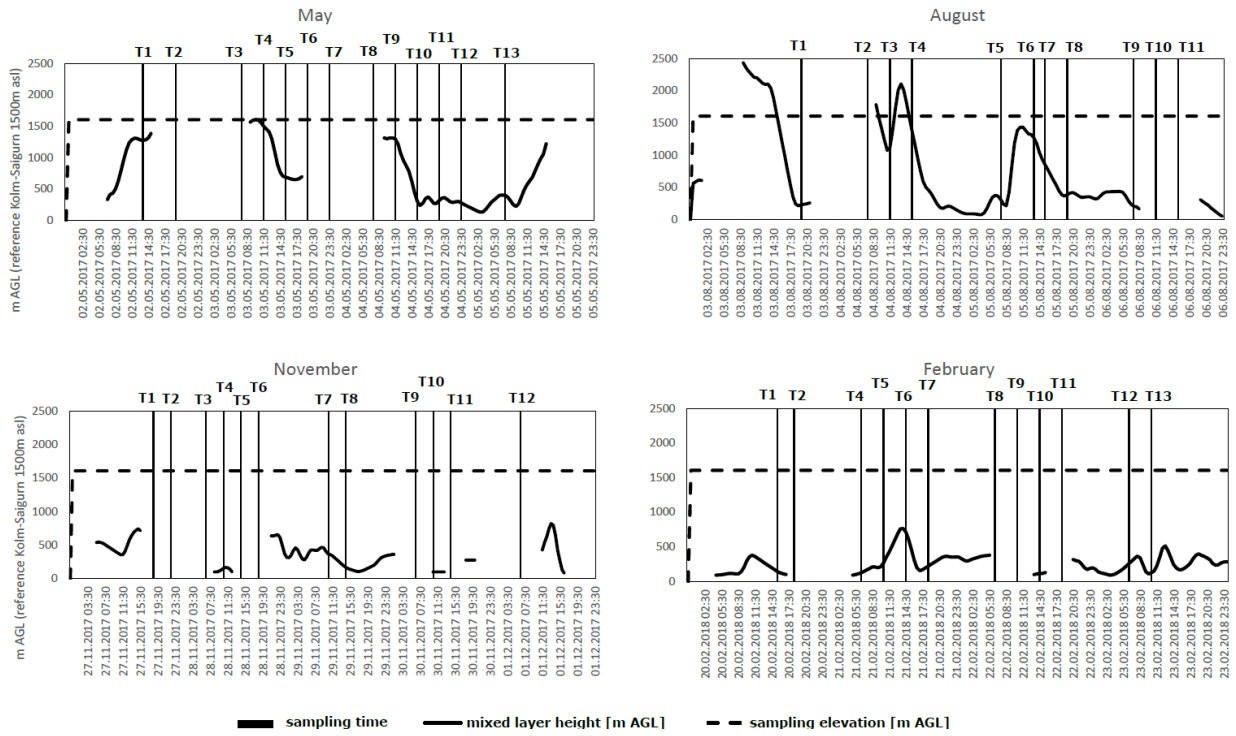


Figure S4 Location of planetary boundary layer above ground level, measured at Kolm-Saigurn (1500m asl) and respective sample times (vertical lines), dashed line indicates the elevation of the sampling location (i.e. Sonnblick Observatory)

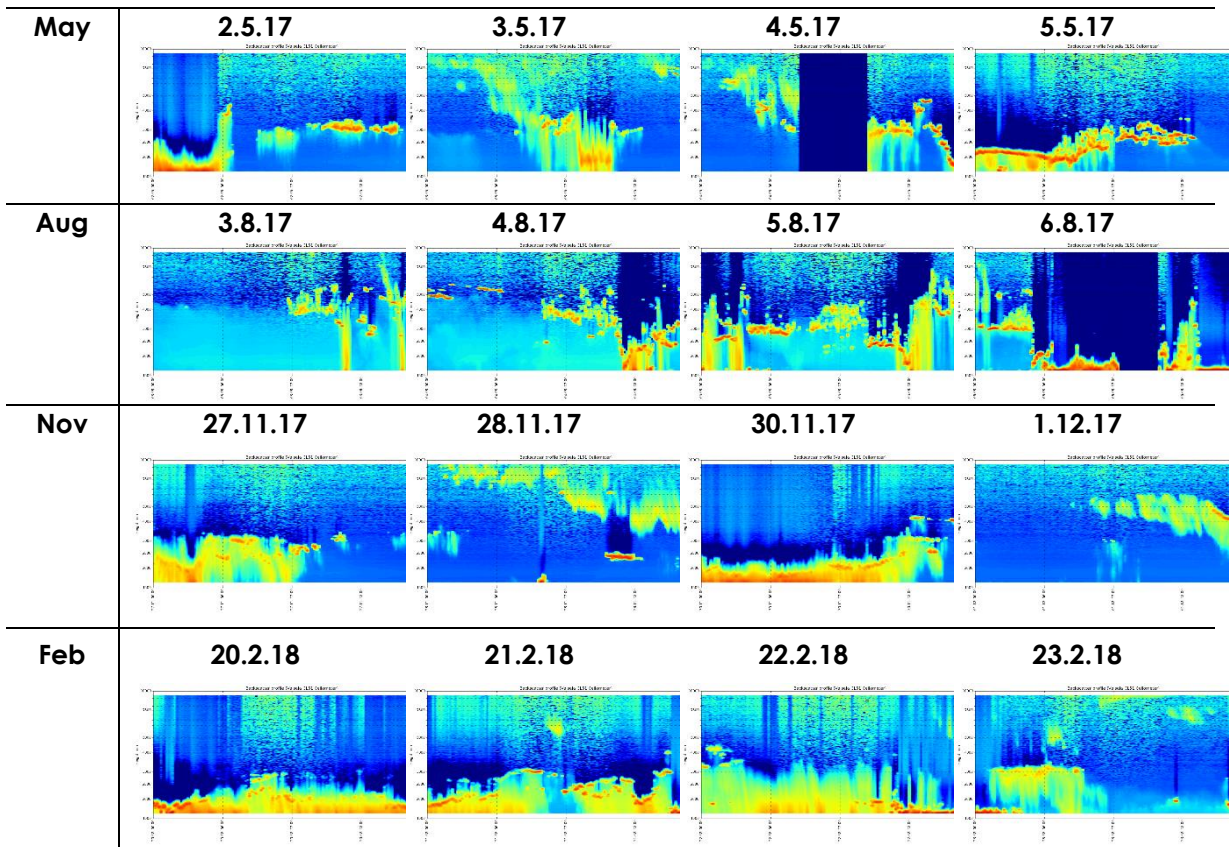


Figure S5 Backscatter ceilometer data of the respective sampling days in Kolm-Saigurn (1500m asl), red color indicates high particle concentration, blue colours indicate low particle concentration

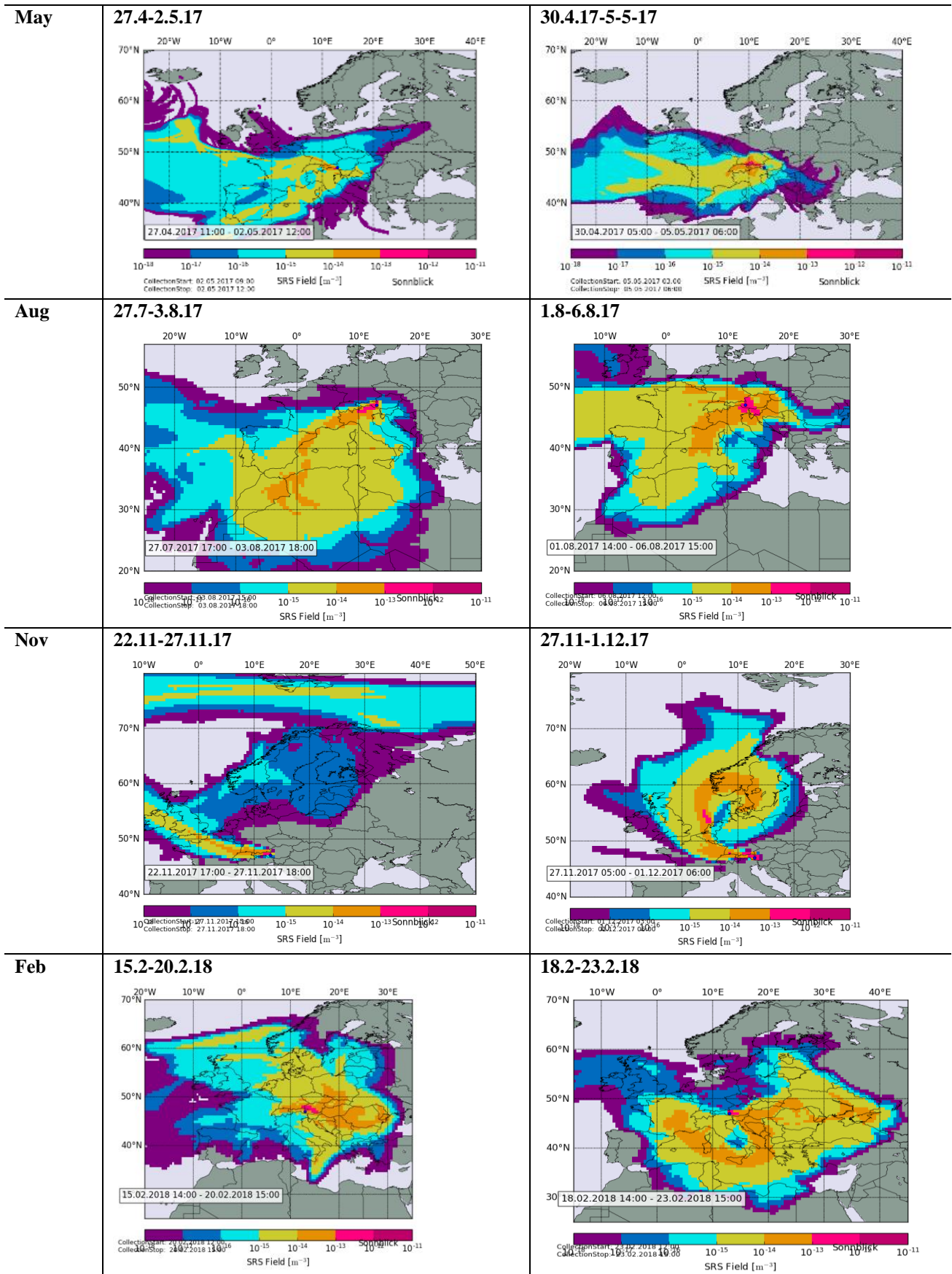


Figure S6 FLEXPART 120hrs air-mass backcalculation for the location Sonnblick Observatory to identify possible source regions of air masses, calculations were done for the first and last day of the sampling periods respectively

Table S11 Mean relative abundances (%) of the ten most abundant bacterial phyla, resp. fungal classes, \*in August the abundances of rain and hail in ( ) are given

Bacteria						Fungi					
Phylum	Sample Type	May	Aug	Nov	Feb	Class	Sample Type	May	Aug	Nov	Feb
<i>Acido-bacteria</i>	Air	10.8	6.9	0.2	1.8	<i>Agarico-mycetes</i>	Air	38.3	54.9	9.9	34.6
	Snow	2.9	1.8	6.2	3.2		Snow	30.6	4.01	27.4	2.7
	Cloud*(R)(H)	12.5	7.3(0.3)	4.6	4.2		Cloud*(R)(H)	7.7	55.5(3.3)	26.2	2.9
<i>Actino-bacteria</i>	Air	8.6	7.5	6.4	14.9	<i>Dothideo-mycetes</i>	Air	0.9	2.9	3.3	4.6
	Snow	53.8	20.1	18.6	28.1		Snow	1.9	2.1	9.9	21.9
	Cloud*(R)(H)	10.9	36.4(5.3)	34.8	40.7		Cloud*(R)(H)	9.8	0.4(36.5)	12.3	35.8
<i>Bacterio-detes</i>	Air	11.8	11.8	0.4	3.3	<i>Eurotio-mycetes</i>	Air	22.2	0.9	14.1	4.3
	Snow	1.3	47.4	22.0	17.5		Snow	0.1	0.1	15.8	20.2
	Cloud*(R)(H)	2.0	4.0(4.7)	10.5	5.5		Cloud*(R)(H)	2.1	0.1(2.5)	23.9	18.1
<i>Chloroflexi</i>	Air	2.6	0.2	0.9	0.1	<i>Lecarno-mycetes</i>	Air	0.0	18.9	0.0	1.3
	Snow	3.3	0.01	4.2	1.3		Snow	0.5	7.6	16.8	26.5
	Cloud*(R)(H)	0.1	0.0(0.0)	4.5	2.3		Cloud*(R)(H)	3.2	0.1(1.2)	9.2	10.3
<i>Cyano-Bacteria/Chloroplast</i>	Air	0.9	3.6	0.1	3.3	<i>Leotio-mycetes</i>	Air	0.0	7.8	1.3	0.5
	Snow	7.8	2.7	13.4	16.7		Snow	0.6	11.7	12.4	6.2
	Cloud*(R)(H)	8.6	0.0(0.8)	12.5	20.8		Cloud*(R)(H)	6.0	0.1(31.6)	9.8	2.9
<i>Deinococcus-Thermus</i>	Air	0.1	1.0	0.1	1.3	<i>Saccharo-mycetes</i>	Air	10.4	0.1	0.4	6.9
	Snow	0.2	0.1	0.5	0.5		Snow	0.0	0.1	0.0	0.0
	Cloud*(R)(H)	0.1	0.0(0.0)	0.4	0.8		Cloud*(R)(H)	0.0	0.0(0.0)	0.1	0.3
<i>Firmicutes</i>	Air	5.1	14.8	78.4	48.1	<i>Sordario-mycetes</i>	Air	0.0	1.9	23.2	0.0
	Snow	19.0	0.0	3.2	2.9		Snow	1.8	13.9	1.8	4.5
	Cloud*(R)(H)	11.4	3.8(0.0)	7.3	3.1		Cloud*(R)(H)	2.9	37.2(0.7)	1.8	1.5
<i>Nitrospirae</i>	Air	0.6	0.0	0.4	0.2	<i>Tremello-mycetes</i>	Air	10.2	0.9	12.1	1.6
	Snow	0.0	0.0	1.3	0.2		Snow	0.1	2.05	1.9	3.3
	Cloud*(R)(H)	0.6	0.0(0.0)	0.8	0.5		Cloud*(R)(H)	36.4	0.00(7.8)	1.8	1.5
<i>Plancto-mycetes</i>	Air	5.2	4.8	1.8	3.7	<i>unidentified</i>	Air	6.9	11.6	35.5	39.9
	Snow	1.4	0.6	6.3	2.5		Snow	64.5	58.5	11.5	14.6
	Cloud*(R)(H)	2.8	12.32(0.01)	4.9	3.9		Cloud*(R)(H)	31.8	6.7(16.4)	9.4	26.8
<i>Proteo-bacteria</i>	Air	54.3	49.4	11.2	23.2	<i>Wallemio-mycetes</i>	Air	11.1	0.0	0.2	6.2
	Snow	10.32	27.1	24.4	27.2		Snow	0.0	0.0	2.4	0.0
	Cloud*(R)(H)	51.1	36.2(88.8)	19.6	18.2		Cloud*(R)(H)	0.1	0.0(0.0)	5.5	0.1

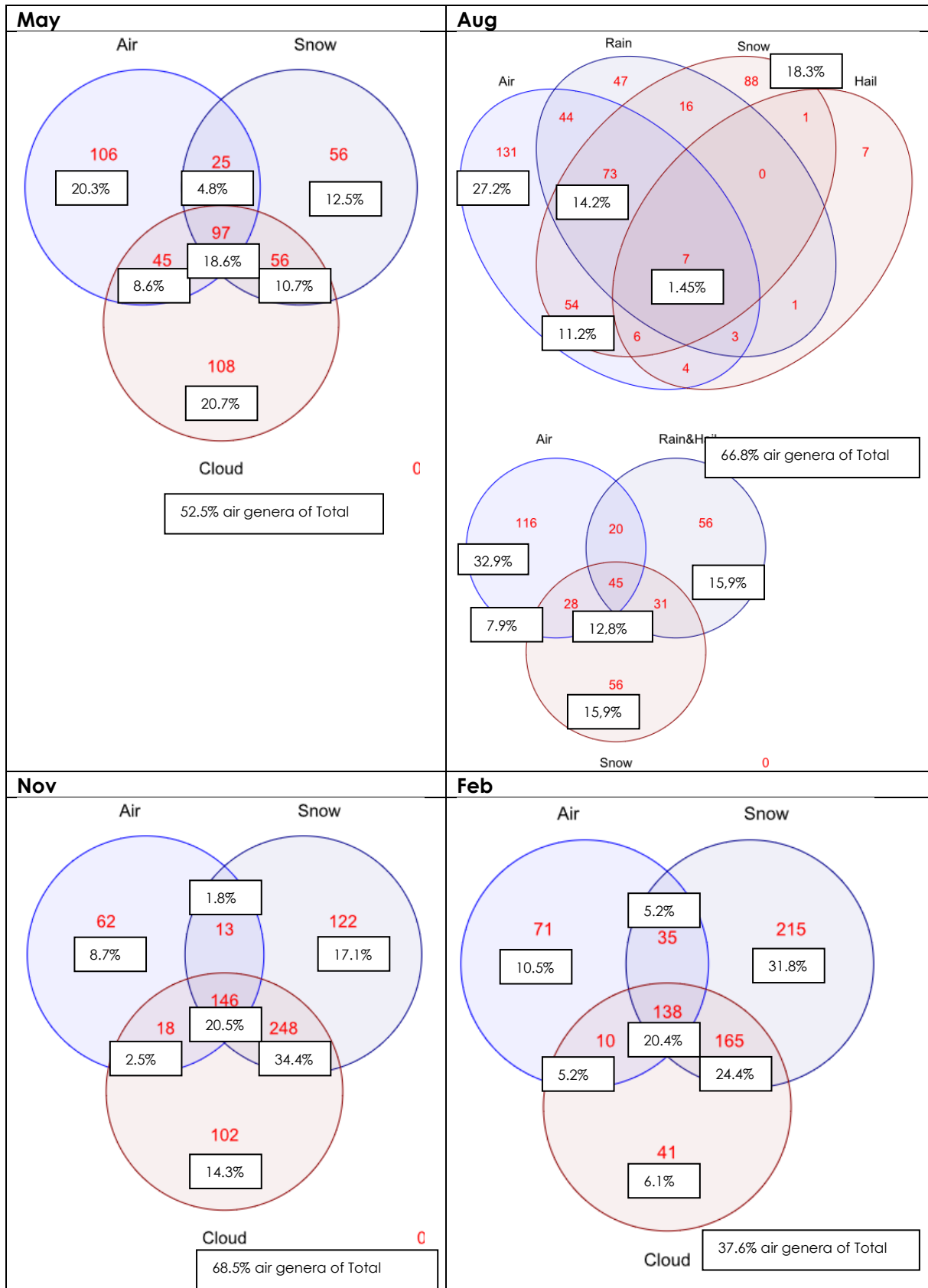


Figure S7 Venn-diagrams of unique and shared bacterial genera for air and precipitation by season, red numbers indicate the number of genera, %ages are given as share of the total genera per season

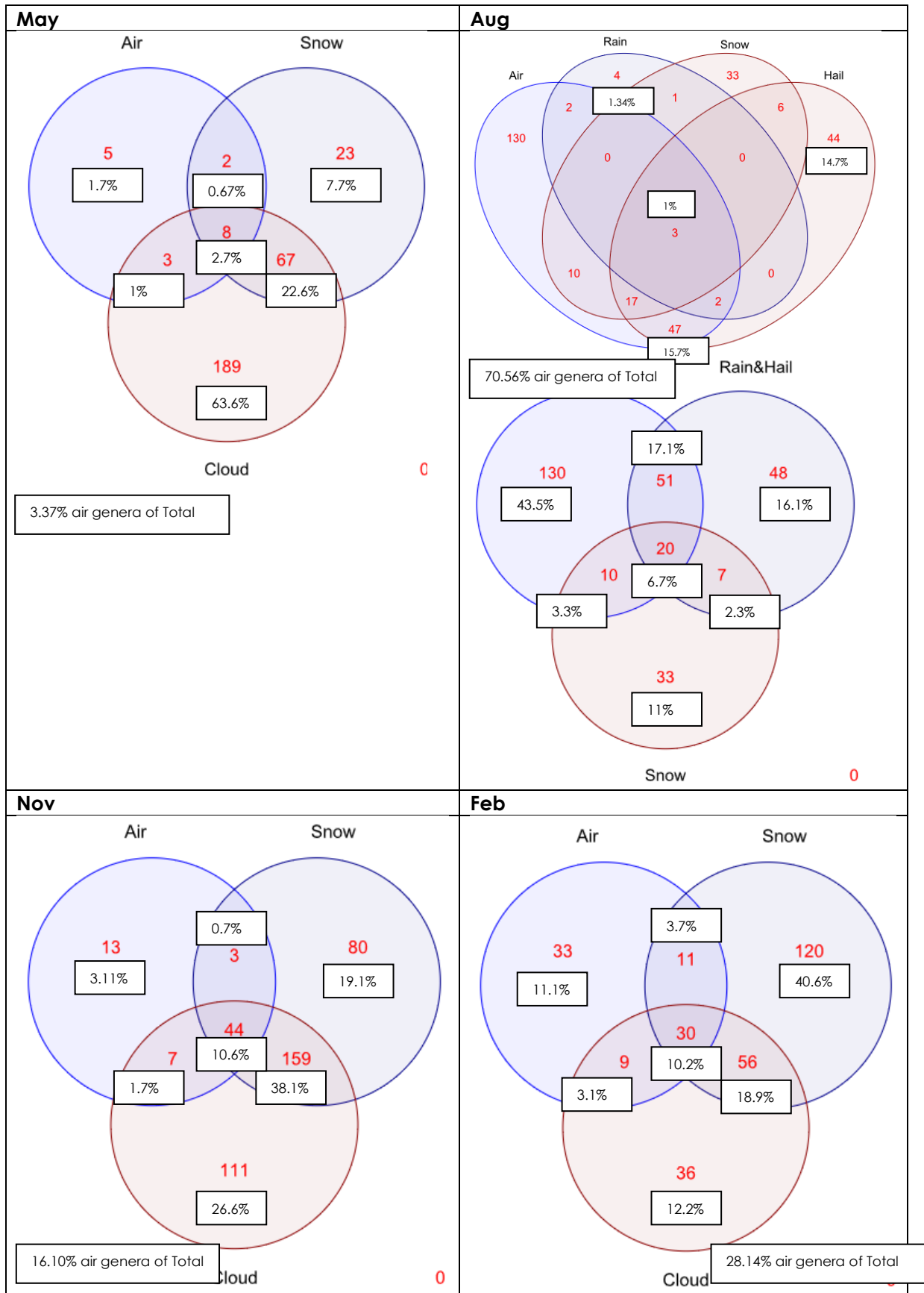


Figure S8 Venn-diagrams of unique and shared fungal genera for air and precipitation by season, red numbers indicate the number of genera, %ages are given as share of the total genera per season

*Table S12 SIMPER analysis of the bacterial genera driving difference in Bray-Curtis distance in seasonal air*

<b>d_Feb_a_May</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.11	0.14	0.78	21.21	2.70	0.12
Aminobacter	0.08	0.05	1.40	3.25	16.52	0.20
Chlorophyta	0.03	0.07	0.48	6.24	1.33	0.23
Bosea	0.03	0.04	0.92	0.00	6.60	0.27
Schlesneria	0.03	0.03	1.18	0.74	6.40	0.30
Roseomonas	0.03	0.09	0.31	5.63	0.09	0.33
Providencia	0.02	0.08	0.30	4.99	0.01	0.36
Tepidimonas	0.02	0.03	0.87	0.00	4.45	0.38
Rothia	0.02	0.03	0.66	4.01	0.27	0.41
Rhodopseudomonas	0.02	0.04	0.54	0.56	3.80	0.43
<b>d_Feb_b_Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.11	0.15	0.73	21.21	0.04	0.11
Bosea	0.04	0.03	1.31	0.00	7.92	0.15
Burkholderia	0.03	0.07	0.51	0.97	6.50	0.19
Chlorophyta	0.03	0.07	0.44	6.24	0.69	0.22
Aminobacter	0.03	0.03	0.85	3.25	4.33	0.25
Roseomonas	0.03	0.09	0.31	5.63	0.00	0.28
Schlesneria	0.03	0.02	1.05	0.74	5.24	0.31
Providencia	0.02	0.08	0.30	4.99	0.00	0.33
Cloacibacterium	0.02	0.05	0.50	0.34	4.42	0.36
Rothia	0.02	0.03	0.68	4.01	0.46	0.38
<b>d_Feb_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.16	0.15	1.09	21.21	29.91	0.19
Tumebacillus	0.04	0.06	0.69	0.00	7.92	0.23
Microbacterium	0.04	0.07	0.59	0.31	7.98	0.28
Chlorophyta	0.03	0.07	0.46	6.24	0.87	0.32
Roseomonas	0.03	0.09	0.35	5.63	0.79	0.35
Providencia	0.02	0.08	0.30	4.99	0.00	0.38
Aminobacter	0.02	0.03	0.74	3.25	2.83	0.41
unclass_Enterobacteriaceae	0.02	0.03	0.79	0.22	4.62	0.43
Rothia	0.02	0.03	0.68	4.01	0.49	0.46
Herbaspirillum	0.02	0.05	0.34	0.00	3.70	0.48
<b>a_May_b_Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Aminobacter	0.07	0.05	1.40	16.52	4.33	0.09
Bosea	0.04	0.03	1.28	6.60	7.92	0.13
Burkholderia	0.04	0.07	0.54	1.60	6.50	0.17
Schlesneria	0.03	0.02	1.15	6.40	5.24	0.21
Rhodopseudomonas	0.03	0.05	0.60	3.80	2.44	0.24
Cloacibacterium	0.02	0.05	0.53	0.62	4.42	0.27
Tepidimonas	0.02	0.02	0.96	4.45	2.48	0.29
Duganella	0.02	0.05	0.37	3.60	0.43	0.32
Gp1	0.02	0.02	1.07	2.52	2.74	0.34
Geodermatophilus	0.02	0.03	0.53	0.00	3.11	0.35
<b>a_May_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.15	0.16	0.90	2.70	29.91	0.16
Aminobacter	0.08	0.05	1.39	16.52	2.83	0.25
Tumebacillus	0.04	0.06	0.69	0.00	7.92	0.29
Microbacterium	0.04	0.07	0.60	0.46	7.98	0.33
Bosea	0.03	0.03	0.97	6.60	1.95	0.37
Schlesneria	0.03	0.02	1.20	6.40	2.79	0.40
unclass_Enterobacteriaceae	0.02	0.03	0.80	0.33	4.62	0.43
Tepidimonas	0.02	0.02	0.91	4.45	1.19	0.45
Rhodopseudomonas	0.02	0.04	0.54	3.80	0.56	0.47
Herbaspirillum	0.02	0.05	0.34	0.01	3.70	0.49
<b>b_Aug_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.15	0.17	0.90	0.04	29.91	0.16
Tumebacillus	0.04	0.06	0.69	0.34	7.92	0.20
Microbacterium	0.04	0.07	0.59	0.38	7.98	0.25
Burkholderia	0.03	0.07	0.51	6.50	1.02	0.28
Bosea	0.03	0.03	1.19	7.92	1.95	0.32



Aminobacter	0.03	0.03	0.94	4.33	2.83	0.35
Schlesneria	0.02	0.02	1.09	5.24	2.79	0.37
unclass_Enterobacteriaceae	0.02	0.03	0.85	0.91	4.62	0.40
Cloacibacterium	0.02	0.05	0.46	4.42	0.00	0.42
Herbaspirillum	0.02	0.05	0.34	0.00	3.70	0.44

*Table S13 SIMPER analysis of the bacterial phyla driving difference in Bray-Curtis distance in seasonal air*

<b>d_Feb_a_May</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.17	0.09	1.89	28.91	54.96	0.30
Firmicutes	0.13	0.12	1.03	27.63	7.18	0.52
Actinobacteria	0.06	0.08	0.75	15.00	7.34	0.63
Planctomycetes	0.04	0.04	1.10	6.85	7.93	0.70
Acidobacteria	0.04	0.03	1.13	3.23	7.36	0.77
Cyanobacteria/Chloroplast	0.04	0.07	0.49	6.46	1.33	0.83
<b>d_Feb_b_Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.13	0.08	1.72	28.91	43.23	0.25
Firmicutes	0.12	0.11	1.14	27.63	15.10	0.48
Actinobacteria	0.07	0.08	0.81	15.00	8.97	0.60
Bacteroidetes	0.05	0.04	1.15	5.21	11.01	0.69
Verrucomicrobia	0.04	0.06	0.69	5.71	4.02	0.76
Planctomycetes	0.04	0.04	0.94	6.85	6.00	0.83
<b>d_Feb_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Firmicutes	0.17	0.13	1.36	27.63	43.99	0.31
Proteobacteria	0.12	0.09	1.32	28.91	29.56	0.53
Actinobacteria	0.08	0.08	0.96	15.00	13.02	0.68
Planctomycetes	0.04	0.04	0.84	6.85	4.16	0.75
Cyanobacteria/Chloroplast	0.03	0.07	0.47	6.46	0.88	0.81
Verrucomicrobia	0.03	0.06	0.56	5.71	1.94	0.87
<b>a_May_b_Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.09	0.07	1.31	54.96	43.23	0.23
Firmicutes	0.07	0.06	1.09	7.18	15.10	0.40
Bacteroidetes	0.05	0.05	1.14	6.06	11.01	0.53
Acidobacteria	0.04	0.04	1.07	7.36	6.99	0.64
Actinobacteria	0.04	0.04	0.98	7.34	8.97	0.73
Planctomycetes	0.03	0.02	1.30	7.93	6.00	0.81
<b>a_May_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Firmicutes	0.19	0.14	1.30	7.18	43.99	0.33
Proteobacteria	0.14	0.09	1.57	54.96	29.56	0.59
Actinobacteria	0.06	0.06	1.02	7.34	13.02	0.70
Acidobacteria	0.04	0.04	1.02	7.36	0.52	0.76
Planctomycetes	0.03	0.02	1.37	7.93	4.16	0.82
Bacteroidetes	0.03	0.04	0.75	6.06	0.82	0.87
<b>b_Aug_c_Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Firmicutes	0.16	0.14	1.22	15.10	43.99	0.32
Proteobacteria	0.10	0.07	1.41	43.23	29.56	0.52
Actinobacteria	0.06	0.06	1.04	8.97	13.02	0.64
Bacteroidetes	0.05	0.05	1.06	11.01	0.82	0.74
Acidobacteria	0.03	0.04	0.76	6.99	0.52	0.81
Planctomycetes	0.03	0.02	1.16	6.00	4.16	0.86

Table S141 SIMPER analysis of the bacterial genera driving difference in Bray-Curtis distance in air and precipitation

<b>Air_seasons_Snow [%]</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.07	0.13	0.53	13.52	0.02	0.07
Aminobacter	0.03	0.05	0.72	6.99	0.04	0.11
Chlorophyta	0.03	0.04	0.89	2.30	5.89	0.14
Nakamurella	0.03	0.02	1.11	0.45	5.52	0.17
Ferruginibacter	0.03	0.05	0.49	0.29	5.26	0.20
Roseomonas	0.02	0.05	0.51	1.63	3.59	0.23
Bosea	0.02	0.03	0.72	4.09	0.36	0.25
Bacillariophyta	0.02	0.03	0.68	0.14	3.92	0.27
Schlesneria	0.02	0.02	0.80	3.81	0.06	0.29
Flavobacterium	0.02	0.02	0.97	0.42	3.44	0.31
Burkholderia	0.01	0.04	0.33	2.42	0.15	0.32
Spartobacteria_genera_incertae_sedis	0.01	0.01	0.84	0.96	2.10	0.33
Microbacterium	0.01	0.04	0.31	2.29	0.22	0.35
Mucilaginibacter	0.01	0.03	0.37	0.41	1.78	0.36
Tepidimonas	0.01	0.02	0.60	2.07	0.01	0.37
Tumebacillus	0.01	0.03	0.31	2.06	0.00	0.38
unclass_Planctomycetaceae	0.01	0.02	0.56	1.40	1.30	0.39
Rhodopseudomonas	0.01	0.03	0.37	1.87	0.27	0.40
Gp1	0.01	0.02	0.59	1.81	0.31	0.41
Rhodopila	0.01	0.01	0.68	0.35	1.57	0.42
Janibacter	0.01	0.03	0.30	0.16	1.66	0.43
Janthinobacterium	0.01	0.01	0.60	0.67	1.41	0.44
Duganella	0.01	0.03	0.30	1.08	0.73	0.45
Cryobacterium	0.01	0.01	0.66	0.05	1.69	0.46
GpXIII	0.01	0.01	0.65	0.18	1.47	0.47
Pseudonocardia	0.01	0.01	0.82	0.26	1.47	0.47
unclass_Enterobacteriaceae	0.01	0.02	0.42	1.51	0.06	0.48
Gp16	0.01	0.01	0.75	0.41	1.18	0.49
Rothia	0.01	0.02	0.37	1.30	0.07	0.50
<b>Air-Seasons_Cloud [%]</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Geobacillus	0.07	0.13	0.53	13.52	0.17	0.07
Bosea	0.04	0.07	0.61	4.09	5.77	0.12
Janthinobacterium	0.04	0.10	0.39	0.67	7.57	0.16
Chlorophyta	0.04	0.04	0.91	2.30	7.35	0.20
Aminobacter	0.04	0.05	0.78	6.99	1.19	0.24
Burkholderia	0.02	0.05	0.49	2.42	2.76	0.27
Schlesneria	0.02	0.02	0.82	3.81	0.31	0.29
Nakamurella	0.01	0.02	0.66	0.45	2.73	0.30
Roseomonas	0.01	0.05	0.31	1.63	1.55	0.32
Bacillariophyta	0.01	0.02	0.55	0.14	2.66	0.33
Alteromonas	0.01	0.03	0.37	0.19	2.42	0.35
Cloacibacterium	0.01	0.03	0.42	1.27	1.30	0.36
Romboutsia	0.01	0.02	0.78	0.41	2.12	0.37
Microbacterium	0.01	0.04	0.30	2.29	0.04	0.39
Rhodopseudomonas	0.01	0.03	0.40	1.87	0.53	0.40
Sanguibacter	0.01	0.02	0.47	0.00	2.12	0.41
Tumebacillus	0.01	0.03	0.32	2.06	0.09	0.42
unclass_Planctomycetaceae	0.01	0.02	0.59	1.40	1.40	0.43
Tepidimonas	0.01	0.02	0.60	2.07	0.00	0.44
Granulicella	0.01	0.01	0.78	0.31	1.93	0.45
Spartobacteria_genera_incertae_sedis	0.01	0.01	0.92	0.96	1.45	0.46
Gp1	0.01	0.02	0.57	1.81	0.16	0.47
Terriglobus	0.01	0.02	0.56	0.30	1.58	0.48
Rhodopila	0.01	0.01	0.66	0.35	1.27	0.49
unclass_Enterobacteriaceae	0.01	0.02	0.42	1.51	0.05	0.50
<b>Air_Seasons_Hail [%]</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Janthinobacterium	0.41	0.01	43.99	0.67	82.86	0.42
Geobacillus	0.07	0.13	0.53	13.52	0.00	0.49
Aminobacter	0.03	0.05	0.71	6.99	0.00	0.52
Bosea	0.02	0.03	0.69	4.09	0.05	0.55
Schlesneria	0.02	0.02	0.79	3.81	0.00	0.57

Chlorophyta	0.01	0.04	0.32	2.30	0.54	0.58
Burkholderia	0.01	0.04	0.32	2.42	0.00	0.59
Microbacterium	0.01	0.04	0.30	2.29	0.00	0.60
unclass_Cytophagales	0.01	0.00	5.92	0.16	2.38	0.61
Subtercola	0.01	0.00	16.93	0.03	2.11	0.62
<b>Air_Seasons_Rain [%]</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Gp1	0.11	0.11	1.07	1.81	22.73	0.12
Dehalospirillum	0.11	0.11	0.99	0.00	21.90	0.23
Geobacillus	0.07	0.13	0.53	13.52	0.16	0.30
Nakamurella	0.06	0.05	1.03	0.45	11.20	0.36
Aminobacter	0.04	0.04	0.93	6.99	3.55	0.40
Aquisphaera	0.04	0.04	1.01	0.10	7.33	0.44
unclass_Actinomycetales	0.03	0.03	1.02	0.18	5.52	0.47
Bosea	0.02	0.03	0.70	4.09	0.00	0.49
Novosphingobium	0.02	0.02	1.08	0.68	3.94	0.51
Schlesneria	0.02	0.02	0.80	3.81	0.00	0.53

*Table S15 SIMPER analysis of the bacterial phyla driving difference in Bray-Curtis distance in air and precipitation*

<b>Air_seasons_Snow</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.11	0.08	1.44	39.41	23.22	0.20
Firmicutes	0.11	0.12	0.89	23.31	4.38	0.38
Actinobacteria	0.10	0.07	1.44	11.05	25.11	0.55
Bacteroidetes	0.08	0.07	1.06	5.67	18.49	0.69
Cyanobacteria/Chloroplast	0.06	0.05	1.27	2.65	12.86	0.80
Acidobacteria	0.03	0.03	1.01	4.53	4.49	0.85
Verrucomicrobia	0.03	0.03	0.81	3.44	4.29	0.90
Planctomycetes	0.03	0.03	0.91	6.28	3.17	0.94
Chloroflexi	0.01	0.02	0.69	1.15	2.11	0.97
Cand. Saccharibacteria	0.01	0.01	0.58	0.59	0.72	0.98
<b>Air_seasons_Cloud</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.13	0.09	1.43	39.41	36.62	0.25
Firmicutes	0.10	0.12	0.88	23.31	6.42	0.44
Actinobacteria	0.09	0.07	1.36	11.05	22.78	0.62
Cyanobacteria/Chloroplast	0.06	0.05	1.17	2.65	11.06	0.72
Bacteroidetes	0.03	0.03	1.19	5.67	6.53	0.79
Acidobacteria	0.03	0.03	1.06	4.53	6.24	0.85
Planctomycetes	0.02	0.03	0.91	6.28	3.69	0.90
Verrucomicrobia	0.02	0.03	0.70	3.44	2.95	0.94
Chloroflexi	0.01	0.02	0.67	1.15	1.90	0.96
Cand. Saccharibacteria	0.00	0.01	0.40	0.59	0.33	0.97
<b>Air_seasons_Rain</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Acidobacteria	0.11	0.10	1.16	4.53	22.73	0.21
Actinobacteria	0.11	0.08	1.38	11.05	21.69	0.41
Firmicutes	0.11	0.12	0.87	23.31	2.96	0.61
Proteobacteria	0.10	0.07	1.39	39.41	42.93	0.79
Planctomycetes	0.04	0.03	1.32	6.28	7.33	0.86
Bacteroidetes	0.03	0.03	0.81	5.67	2.37	0.91
Verrucomicrobia	0.02	0.04	0.46	3.44	0.00	0.94
Cyanobacteria/Chloroplast	0.01	0.04	0.32	2.65	0.00	0.97
Chloroflexi	0.01	0.02	0.31	1.15	0.00	0.98
Chlamydiae	0.00	0.01	0.38	0.74	0.00	0.98
<b>Air_seasons_Hail</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Proteobacteria	0.25	0.11	2.33	39.41	88.59	0.46
Firmicutes	0.12	0.13	0.91	23.31	0.01	0.68
Actinobacteria	0.04	0.06	0.67	11.05	5.31	0.75
Planctomycetes	0.03	0.03	0.92	6.28	0.06	0.81
Bacteroidetes	0.03	0.03	0.94	5.67	4.73	0.86
Acidobacteria	0.02	0.03	0.66	4.53	0.31	0.91
Verrucomicrobia	0.02	0.04	0.46	3.44	0.03	0.94
Cyanobacteria/Chloroplast	0.01	0.04	0.36	2.65	0.75	0.96
Chloroflexi	0.01	0.02	0.30	1.15	0.00	0.97
Chlamydiae	0.00	0.01	0.38	0.74	0.00	0.98

Table S16 SIMPER analysis of the fungal genera driving difference in Bray-Curtis distance in seasonal air

<b>Feb vs. May</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
unidentified.112	0.17	0.13	1.34	35.87	2.34	0.18
Wallemia	0.08	0.15	0.51	5.68	11.11	0.26
Aspergillus	0.06	0.15	0.39	1.34	11.11	0.32
Phanerochaete	0.06	0.16	0.35	0.00	11.11	0.38
unidentified.65	0.06	0.16	0.35	0.00	11.11	0.44
Holtermanniella	0.05	0.15	0.35	0.00	10.22	0.49
unidentified.11	0.05	0.11	0.40	1.30	8.25	0.54
Fomitopsis	0.05	0.13	0.35	0.01	9.01	0.58
Candida	0.04	0.10	0.35	0.00	7.25	0.62
Trichaptum	0.03	0.08	0.35	0.00	5.56	0.65
<b>Feb vs. Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
unidentified.112	0.16	0.12	1.32	35.87	3.75	0.17
Sarcogyne	0.04	0.07	0.55	0.00	7.30	0.21
unidentified.107	0.04	0.03	1.33	1.22	7.00	0.25
Mycena	0.03	0.06	0.48	5.44	0.51	0.28
Wallemia	0.03	0.06	0.50	5.68	0.00	0.31
Acarospora	0.03	0.04	0.68	1.29	4.57	0.33
Saccharomyces	0.03	0.08	0.30	5.10	0.00	0.36
unidentified.60	0.02	0.04	0.63	4.19	1.31	0.39
Fomitopsis	0.02	0.02	0.86	0.01	4.28	0.41
unidentified.11	0.02	0.02	1.05	1.30	3.49	0.43
<b>Feb vs. Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
unidentified.112	0.13	0.11	1.12	35.87	34.47	0.17
unidentified.25	0.11	0.07	1.72	0.00	22.75	0.32
Exophiala	0.07	0.05	1.22	0.68	13.62	0.41
Filobasidium	0.06	0.09	0.66	1.51	11.49	0.49
Wallemia	0.03	0.06	0.52	5.68	0.19	0.52
Mycena	0.03	0.06	0.44	5.44	0.00	0.56
Saccharomyces	0.03	0.08	0.30	5.10	0.00	0.59
unidentified.60	0.02	0.04	0.52	4.19	0.22	0.62
Extremus	0.02	0.06	0.30	3.63	0.01	0.65
Cystobasidium	0.02	0.02	0.65	2.53	1.08	0.67
<b>May vs. Aug</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Phanerochaete	0.07	0.15	0.47	11.11	3.45	0.07
Fomitopsis	0.06	0.12	0.53	9.001	4.28	0.14
Aspergillus	0.06	0.16	0.35	11.11	0.00	0.19
Wallemia	0.06	0.16	0.35	11.11	0.00	0.25
unidentified.65	0.06	0.16	0.35	11.11	0.00	0.31
unidentified.11	0.05	0.11	0.51	8.25	3.49	0.37
Holtermanniella	0.05	0.15	0.35	10.22	0.00	0.42
unidentified.107	0.04	0.03	1.25	4.57	7.00	0.46
Trichaptum	0.04	0.08	0.48	5.57	2.29	0.50
Sarcogyne	0.04	0.07	0.55	0.00	7.30	0.54
<b>May vs. Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
unidentified.112	0.16	0.12	1.38	2.34	34.47	0.17
unidentified.25	0.11	0.07	1.72	0.00	22.75	0.28
Exophiala	0.07	0.06	1.23	0.00	13.62	0.35
Filobasidium	0.06	0.09	0.61	0.00	11.49	0.41
Wallemia	0.06	0.16	0.36	11.11	0.19	0.47
Aspergillus	0.06	0.16	0.35	11.11	0.01	0.53
Phanerochaete	0.06	0.16	0.35	11.11	0.00	0.58
unidentified.65	0.06	0.16	0.35	11.11	0.00	0.64
Holtermanniella	0.05	0.15	0.35	10.21	0.00	0.69
Fomitopsis	0.05	0.13	0.35	9.005	0.00	0.74
<b>Aug vs. Nov</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
unidentified.112	0.15	0.12	1.32	3.75	34.47	0.1636
unidentified.25	0.11	0.07	1.66	0.95	22.75	0.2804
Exophiala	0.07	0.06	1.23	0.00	13.62	0.3528
Filobasidium	0.06	0.09	0.62	0.01	11.49	0.4137
Sarcogyne	0.04	0.07	0.55	7.30	0.00	0.4525

unidentified.107	0.03	0.03	1.31	7.00	0.48	0.4886
Acarospora	0.02	0.04	0.60	4.57	0.00	0.5129
Fomitopsis	0.02	0.02	0.86	4.28	0.00	0.5356
Phanerochaete	0.02	0.02	0.98	3.45	0.00	0.5540
unidentified.11	0.02	0.02	1.05	3.49	0.58	0.5721

*Table S172 SIMPER analysis of the fungal classes driving difference in Bray-Curtis distance in air and precipitation*

<b>Air_seasons_Snow</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Agaricomycetes	0.16	0.14	1.11	33.44	10.42	0.21
unidentified.5	0.10	0.11	0.96	20.28	12.56	0.34
Lecanoromycetes	0.10	0.07	1.35	5.11	18.81	0.47
Eurotiomycetes	0.08	0.09	0.91	9.56	14.22	0.58
Dothideomycetes	0.07	0.06	1.11	2.81	14.22	0.67
Sordariomycetes	0.04	0.06	0.75	6.34	4.54	0.73
Tremellomycetes	0.03	0.08	0.43	5.83	2.39	0.78
Leotiomycetes	0.03	0.03	1.37	2.38	7.58	0.82
unidentified.3	0.02	0.02	1.00	3.21	3.56	0.85
Wallemiomycetes	0.02	0.08	0.28	3.96	0.60	0.88
<b>Air_seasons_Cloud</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Agaricomycetes	0.15	0.13	1.11	33.44	12.18	0.20
unidentified.5	0.11	0.12	0.98	20.28	17.03	0.36
Tremellomycetes	0.10	0.15	0.65	5.83	16.88	0.49
Eurotiomycetes	0.08	0.10	0.81	9.56	12.38	0.60
Dothideomycetes	0.08	0.06	1.31	2.81	15.96	0.70
Lecanoromycetes	0.05	0.06	0.84	5.11	6.54	0.77
Sordariomycetes	0.04	0.05	0.67	6.34	2.14	0.82
Leotiomycetes	0.03	0.02	1.65	2.38	6.32	0.85
unidentified.3	0.03	0.02	1.19	3.21	4.97	0.89
Wallemiomycetes	0.03	0.08	0.35	3.96	1.80	0.93
<b>Air_seasons_Rain</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Agaricomycetes	0.20	0.15	1.38	33.44	55.46	0.28
Sordariomycetes	0.19	0.17	1.12	6.34	37.21	0.54
unidentified.5	0.10	0.12	0.83	20.28	0.56	0.68
Eurotiomycetes	0.05	0.11	0.44	9.56	0.05	0.75
unidentified	0.03	0.03	1.00	0.01	6.15	0.79
Tremellomycetes	0.03	0.09	0.34	5.83	0.00	0.83
Lecanoromycetes	0.03	0.07	0.36	5.11	0.10	0.86
Saccharomycetes	0.02	0.07	0.31	4.20	0.00	0.89
Wallemiomycetes	0.02	0.08	0.24	3.96	0.00	0.92
unidentified.3	0.02	0.03	0.54	3.21	0.00	0.94
<b>Air_seasons_Hail</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Agaricomycetes	0.16	0.16	1.01	33.44	2.89	0.19
Dothideomycetes	0.15	0.03	5.55	2.81	32.40	0.38
Leotiomycetes	0.13	0.02	5.78	2.38	28.08	0.54
unidentified.5	0.09	0.10	0.94	20.28	10.05	0.65
Tremellomycetes	0.05	0.07	0.67	5.83	6.91	0.71
Eurotiomycetes	0.05	0.10	0.46	9.56	2.21	0.77
Sordariomycetes	0.03	0.06	0.56	6.34	0.65	0.80
Arthoniomycetes	0.03	0.00	14.70	0.10	6.10	0.84
Lecanoromycetes	0.03	0.07	0.41	5.11	1.11	0.88
unidentified.3	0.02	0.02	1.39	3.21	4.23	0.91

*Table 18 SIMPER analysis of the fungal phyla driving difference in Bray-Curtis distance in air and precipitation*

<b>Air_seasons_Snow</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Ascomycota	0.21	0.13	1.63	34.24	66.10	0.42
Basidiomycota	0.18	0.13	1.35	45.44	18.27	0.77
unidentified.1	0.10	0.11	0.96	20.28	12.56	0.97
Chytridiomycota	0.01	0.03	0.43	0.01	2.49	0.99
<b>Air_seasons_Cloud</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Basidiomycota	0.18	0.12	1.41	45.44	32.47	0.38
Ascomycota	0.17	0.12	1.47	34.24	49.38	0.74
unidentified.1	0.11	0.12	0.98	20.28	17.03	0.99
Mortierellomycota	0.00	0.00	0.46	0.00	0.44	0.99
<b>Air_seasons_Rain</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Ascomycota	0.20	0.13	1.48	34.24	37.83	0.39
Basidiomycota	0.19	0.14	1.36	45.44	55.46	0.75
unidentified.1	0.10	0.12	0.83	20.28	0.56	0.94
Chytridiomycota	0.03	0.03	1.00	0.01	6.15	1.00
<b>Air_seasons_Hail</b>	<b>average</b>	<b>sd</b>	<b>ratio</b>	<b>ava</b>	<b>avb</b>	<b>cumsum</b>
Ascomycota	0.23	0.11	1.98	34.24	75.16	0.46
Basidiomycota	0.17	0.14	1.24	45.44	14.64	0.81
unidentified.1	0.09	0.10	0.94	20.28	10.05	1.00
Chytridiomycota	0.00	0.00	77.64	0.01	0.13	1.00