

Trace Organic Gas Analyzer (TOGA)

Measure VOCs/OVOCs needed to understand chemistry leading to tropospheric ozone and aerosols. Long and short-lived halogenated species that can impact the trop and lower stratosphere

High sensitivity/selectivity GC/MS – pptv- ppqv

1.5 - 2 minute continuous analyses of 50 VOCs

Semi-autonomous operation up to 50,000 ft

Recently deployed on two field experiments

TORERO, DC3



Instrument designed to have very low limits of detection (low – sub pptv) because organic species in ultratrace amounts can have a large impact on the atmosphere

Scientists: Eric Apel
Alan Hills
Becky Hornbrook
Dan Riemer (U Miami)

Support: Steve Gabbard
Roger Hendershot
Rudy Montoya

DC3/TORERO – Recent Experiments



Gulfstream G-V

TOGA Targeted Compounds

Compound

formaldehyde

HCN

Acrolein

isobutane

Chloromethane

Acetaldehyde

Propene

n-Butane

1,3-Butadiene

i-Butene

Bromomethane

Isopentane

Methanol

Pentane

Isoprene

2-Methylpentane

Hexane

Ethanol

Propanal

DMS

methyl iodide

Acetone

Dichloromethane

Acetonitrile

MTBE

Compound

Methacrolein

Methyl Vinyl Ketone

Butanal

MEK

Chloroform

MBO

dibromomethane

chloriodomethane

Tetrachloromethane

Benzene

n-Heptane

Pentanal

2-Pentanone

Toluene

dibromochloromethane

Ethylbenzene, m,p xylene

o-Xylene

bromoform

benzaldehyde

diiodomethane

a-pinene

camphene

b-pinene

limonene

Let us know what other species you are interested in and we can see if we can accommodate

We plan to measure some set of organic nitrates for this experiment