

miniLEO 2018 - 2019 Experimental Summary (total 472 days)

Starting date 06/18/2018

Phase 1 - Bare basalt PERTH (06/18/2018 - 07/20/2018)

Each cycle consisted two days with rainfall applied at 8:30 - 11:30 and 13:30 - 16:30 targeted on the first day of each cycle @ 13 - 14 mm hr⁻¹.

Total 17 cycles (34 days)

Tracers (deuterium and LiCl) were injected on_____

Discharge samples collected @ 0.5-hr interval throughout.

Prenart samples collected daily @ (A) 8:00 - 10:00; (B) 13:00 - 15:00; and (C) 18:00 - 20:00

Geochemical Cycles/Analysis were assessed on 06/18 - 06/20 (Cycle A); 07/04 - 07/06 (Cycle B) and 07/18 - 07/20 (Cycle C)

All discharge and prenart samples were transferred to 4 ml vials and isotope analysis ready

If not analyzed, samples were archived in the walk-in freezer

Chamber measurement

Phase 2 - Bare basalt random forcing

Phase 3 - 1st round panicgrass seeding

250 panicgrass were seeded evenly on the surface of miniLEO on 08/08/2018

Irrigation was applied @_____

Heat and light were applied using and LED Grow Light Array (8 total lights) and a heat lamp array. The LED lights were programmed to mimic sunrise and sunsets by staggering the on-off timing of the lights. East most LED's would turn on around 5:45AM, followed by a second pair of lights, and the third, and fourth over the next hour. All lights were on by 7am and would stay on for roughly 12 hours per day including a similar "stagger-down" shut off period between 5:30pm and 7pm.

The Heating Array was installed semi permanently on the Mini LEO structure, and removed only when a rain event was administered.

Phase 4 - 2st round panicgrass seeding

750 panicgrass were seeded evenly on the surface of miniLEO on 09/09/2018

Irrigation was applied @_____

Heat and light were applied using an LED Grow Light Array (8 total lights) and a heat lamp array. The LED lights were programmed to mimic sunrise and sunsets by staggering the on-off timing of the lights. East most LED's would turn on around 5:45AM, followed by a second pair of lights, and the third, and fourth over the next hour. All lights were on by 7am and would stay on for roughly 12 hours per day including a similar "stagger-down" shut off period between 5:30pm and 7pm.

The Heating Array was installed semi permanently on the Mini LEO structure, and removed only when a rain event was administered.

Phase 5 - mesquite seeding

6 mesquite seeds were pre-soaked for 24 hours then seeded on the surface of miniLEO on 12/05/2018

Irrigation was applied @_____

Heat and light were applied using an LED Grow Light Array (8 total lights) and a heat lamp array. The LED lights were programmed to mimic sunrise and sunsets by staggering the on-off timing of the lights. East most LED's would turn on around 5:45AM, followed by a second pair of lights, and the third, and fourth over the next hour. All lights were on by 7am and would stay on for roughly 12 hours per day including a similar "stagger-down" shut off period between 5:30pm and 7pm.

The Heating Array was installed semi permanently on the Mini LEO structure, and removed only when a rain event was administered.

Phase 6 - Bare basalt PERTH (09/02/2019 - 10/02/2019)

Each cycle consisted two days with rainfall applied at 8:30 - 11:30 and 13:30 - 16:30 targeted on the first day of each cycle @ 13 - 14 mm hr⁻¹.

Total 16 cycles (32 days)

Tracers (deuterium and LiCl) were injected on_____

Discharge samples collected @ 2-hr interval throughout.

Prenart samples collected daily @ (A) 8:00 - 10:00 and (B) 13:00 - 15:00

Geochemical Cycles/Analysis were occurred on 09/02 - 09/04 (Cycle A); 09/18 - 09/20 (Cycle B) and 09/30 - 10/02 (Cycle C)

All discharge and preart samples were transferred to 4 ml vials and isotope analysis ready

If not analyzed, samples were archived in the walk-in freezer

Plant pots treatment

(number) of plant pots with dimension of (__m in dia. X 1 m in depth) were prepared and subjected to identical schedule and treatment in tandem with miniLEO experiment.