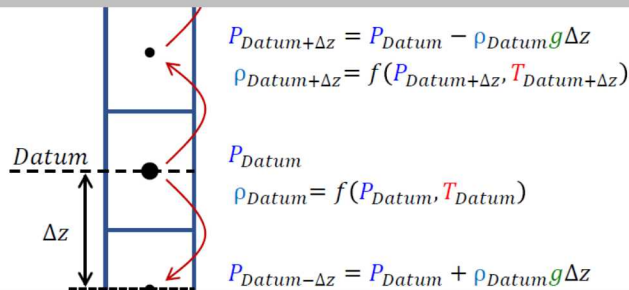


Exceptional service in the national interest



$$P_{Datum+\Delta z} = P_{Datum} - \rho_{Datum} g \Delta z$$

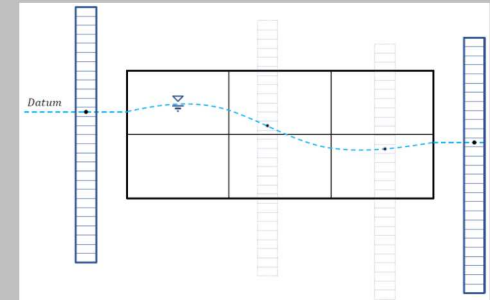
$$\rho_{Datum+\Delta z} = f(P_{Datum+\Delta z}, T_{Datum+\Delta z})$$

$$P_{Datum}$$

$$\rho_{Datum} = f(P_{Datum}, T_{Datum})$$

$$P_{Datum-\Delta z} = P_{Datum} + \rho_{Datum} g \Delta z$$

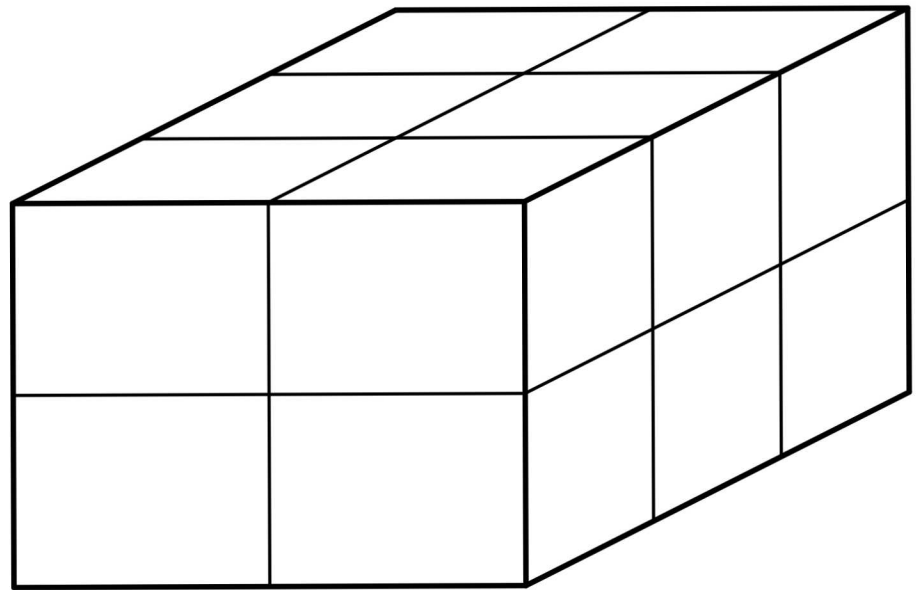
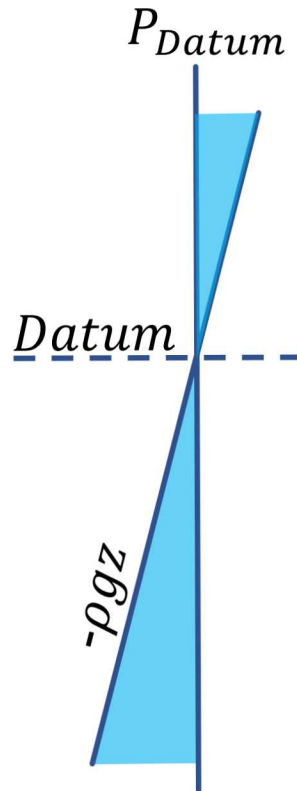
```
FLOW_CONDITION initial
TYPE
  PRESSURE HYDROSTATIC
/
DATUM 0.d0 0.d0 35.d0
PRESSURE 101325.d0
END
```



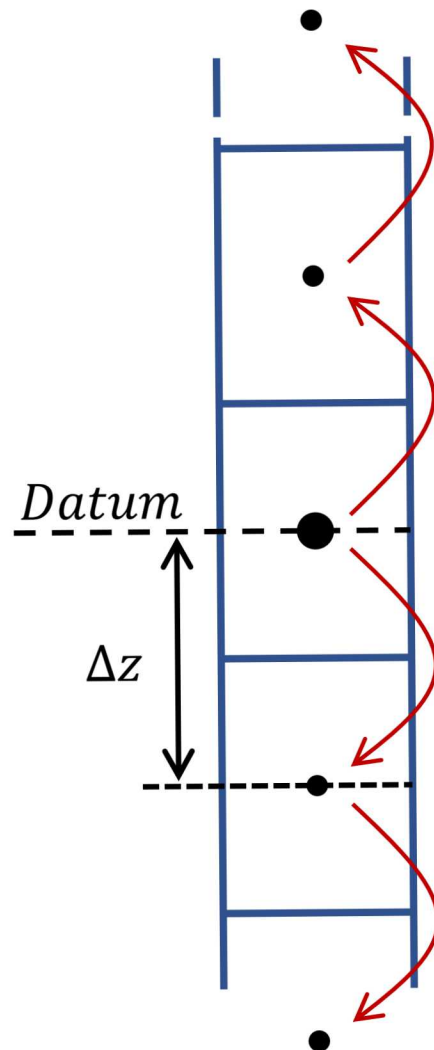
PFLOTRAN Hydrostatic Flow Condition

Hydrostatic Boundary Condition

Hydrostatic Water
Column



Calculating the Hydrostatic Water Column



$$\rho_{Datum+2\Delta z} = f(P_{Datum+2\Delta z}, T_{Datum+2\Delta z})$$

$$P_{Datum+\Delta z} = P_{Datum} - \rho_{Datum} g \Delta z$$

$$\rho_{Datum+\Delta z} = f(P_{Datum+\Delta z}, T_{Datum+\Delta z})$$

$$P_{Datum}$$

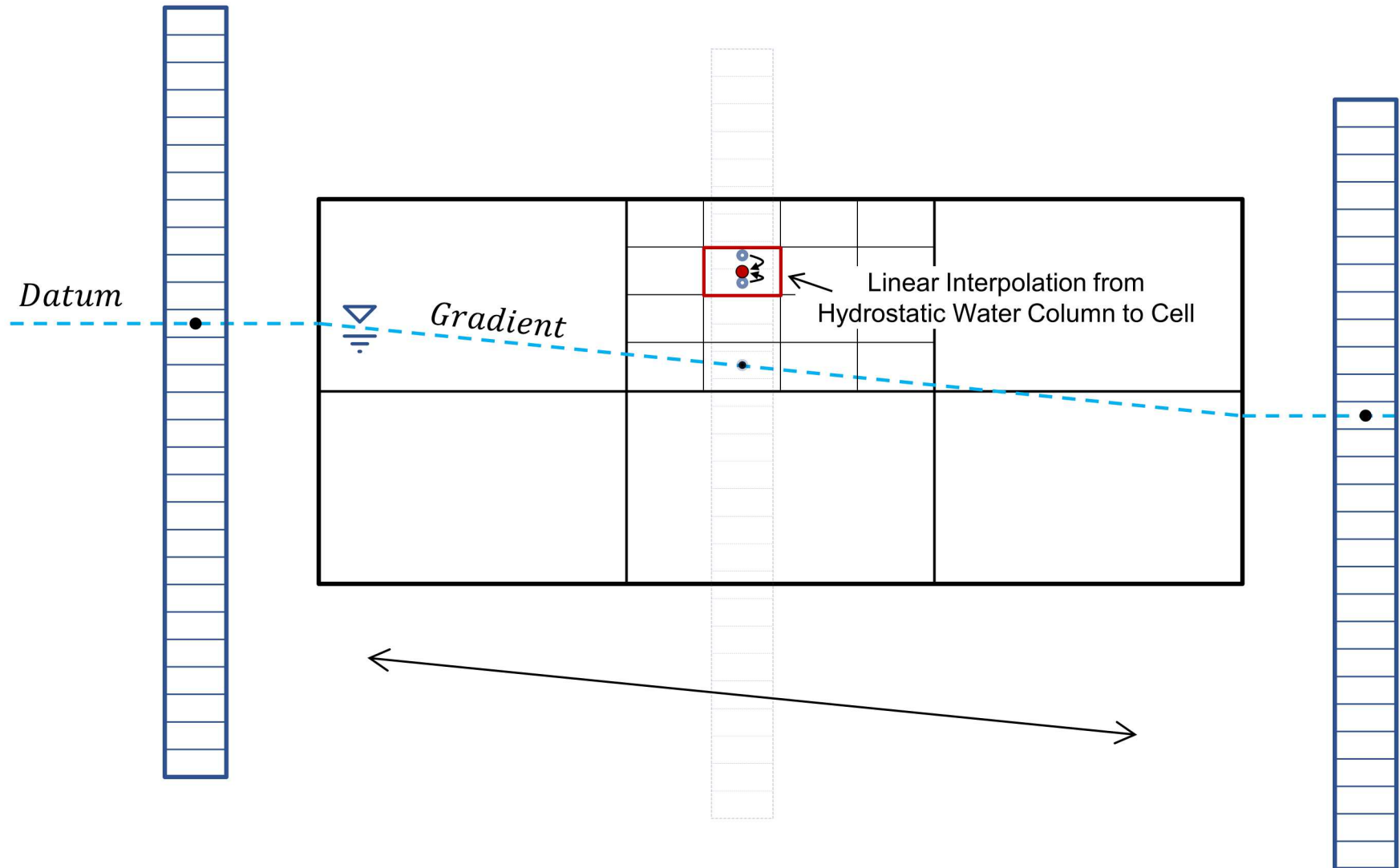
$$\rho_{Datum} = f(P_{Datum}, T_{Datum})$$

$$P_{Datum-\Delta z} = P_{Datum} + \rho_{Datum} g \Delta z$$

$$\rho_{Datum-\Delta z} = f(P_{Datum-\Delta z}, T_{Datum-\Delta z})$$

$$P_{Datum-2\Delta z} = P_{Datum-\Delta z} + \rho_{Datum-\Delta z} g \Delta z$$

Mapping of Hydrostatic Pressure to Cells in Domain



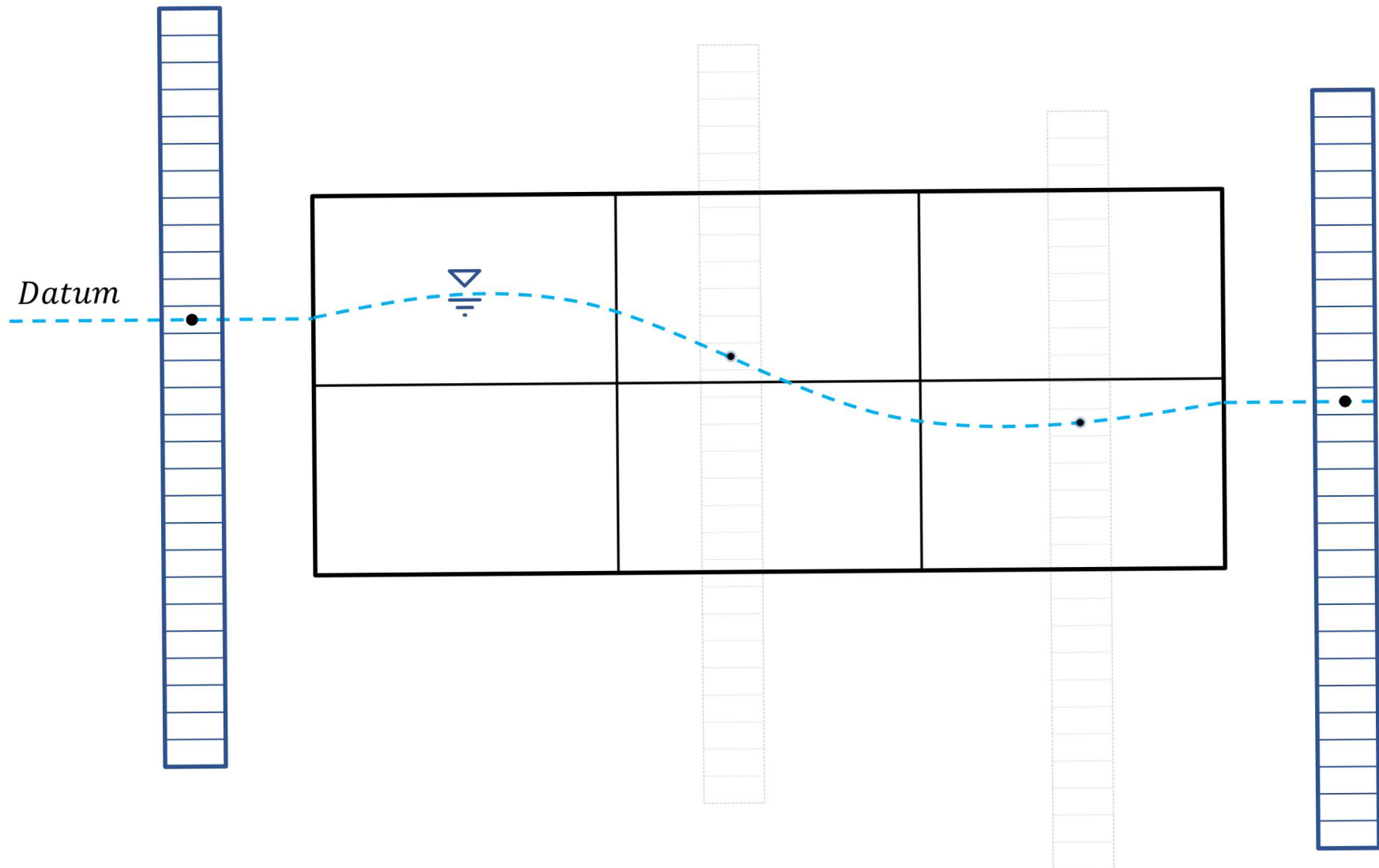
Hydrostatic Flow Condition

```
FLOW_CONDITION initial
  TYPE
    PRESSURE HYDROSTATIC
  /
  DATUM 0.d0 0.d0 35.d0
  PRESSURE 101325.d0
END
```

Hydrostatic Flow Condition with a Head Gradient

```
FLOW_CONDITION initial
  TYPE
    PRESSURE HYDROSTATIC
  /
  DATUM 0.d0 0.d0 35.d0
  GRADIENT
    PRESSURE -1.6666667d-2 0.d0 0.d0
  /
  PRESSURE 101325
END
```

Hydrostatic Flow Condition with Undulating Water Table Defined through a Dataset



Hydrostatic Flow Condition with Datum Defined by a Dataset

```
FLOW_CONDITION initial  
  TYPE  
    PRESSURE HYDROSTATIC  
  /  
  DATUM DATASET water_table  
  PRESSURE 101325.d0  
END
```

```
DATASET water_table  
  FILENAME initial_condition.h5  
  HDF5_DATASET_NAME datum  
END
```

Hydrostatic Flow Condition with a Transient Datum

```
FLOW_CONDITION east
  TYPE
    PRESSURE HYDROSTATIC
  /
  INTERPOLATION LINEAR
  DATUM LIST
    TIME_UNITS d
    0.d0 0.d0 0.d0 34.d0
    10.d0 0.d0 0.d0 39.d0
    50.d0 0.d0 0.d0 33.d0
    100.d0 0.d0 0.d0 34.d0
  /
  PRESSURE 101325.d0
END
```