

Příloha 4

```
Rada = readtable('Název výstupu ze SWMM.txt');
V_prit = Rada(:,2).*(0.001*600*0.9);
Datum = datetime(Rada.Var1);
[Rozdeleni_1, rok] = findgroups(Rada.Var1.Year);

BrandysradaDP = readtable('Brandys_rada_DP.txt');
Sr_data_mm = BrandysradaDP(:,2)./60;
Datum1 = datetime(BrandysradaDP.Var1);
TT = timetable(Datum1, Sr_data_mm);
dt = minutes(10);
uhrny = retime(TT, 'regular', 'sum', 'TimeStep', dt);
SU10min = uhrny.Sr_data_mm;
% Vypocet
A = ;
Souc_odtok = ;
Souc_filtr = ;
Ared = A*Souc_odtok*Souc_filtr;

%Bilance
Va = Ared*(0.0015:0.0001:0.095);
Vpritolok_10min = V_prit + zeros(length(V_prit), length(Va));
%Potreba splach
Pocet_osob = ;
Potreba_splachovani_losd = ;
%Potreba zavlahy
Zavlazovana_plocha = ;
Idealni_srazka = [0 0 0 70 83 100 110 100 70 0 0 0]';
days_in_month = days(dateshift(Datum, 'end', 'month') -
dateshift(Datum, 'start', 'month')+1);
IS_10min = Idealni_srazka(month(Datum))./(days_in_month*24*6);

Vpotr_zavl = zeros(length(IS_10min), 1);
mi = 1;
for mi = 1:length(IS_10min)

    if IS_10min(mi) - SU10min(mi) >=0
        Vpotr_zavl(mi) = IS_10min(mi) - SU10min(mi);
    else Vpotr_zavl(mi) = 0;
    end
    mi = mi + 1;

end

% 1) voda je pouzivana pro splachovani
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Potreba_splachovani_m3_10min =
(Potreba_splachovani_losd*0.001*Pocet_osob)/(24*6);

Va_10min_splach = zeros(height(V_prit)+1, length(Va));
Vpotr_10min_splach = Potreba_splachovani_m3_10min +
zeros(height(V_prit), length(Va));
Vodber_10min_splach = zeros(height(V_prit)+1, length(Va));

mi = 2;
ri = 1;
for mi = 2:height(Vodber_10min_splach)
for ri = 1:length(Va)
    Vodber_10min_splach(mi,ri) = min(Vpotr_10min_splach(mi-1,
ri), Va_10min_splach(mi-1, ri) + Vpritok_10min(mi-1, ri));

    Va_10min_splach(mi,ri) = min(Va_10min_splach(mi-1,
ri)+Vpritok_10min(mi-1, ri)-Vodber_10min_splach(mi, ri),Va(ri));
    ri = ri + 1;
end
    mi = mi + 1;
end

Vodber_10min_splach(1,:) = [];
Va_10min_splach(1,:) = [];

% Efektivita vyuziti objemu nadrze
Er_10min_splach = zeros(length(Va), 1);
mi = 1;
for mi = 1:length(Va)

    Er_10min_splach(mi) =
(sum(Vodber_10min_splach(:,mi))/Va(mi))/length(rok);
    mi = mi + 1;
end

% Stupen pokryti potreby uzitkove vody
Cr_10min_splach = zeros(length(Va), 1);
mi = 1;
for mi = 1:length(Va)

    Cr_10min_splach(mi) =
((sum(Vodber_10min_splach(:,mi))/sum(Vpotr_10min_splach(:,mi)))*100);

    mi = mi + 1;
end

```

```

Objem_Er_Cr_10min_splach = table(Va', Er_10min_splach,
Cr_10min_splach);
Objem_Er_Cr_10min_splach.Properties.VariableNames{1} = 'VA';
rows = (Objem_Er_Cr_10min_splach.Er_10min_splach<=8.5 &
Objem_Er_Cr_10min_splach.Er_10min_splach>=7.5);
Navrhove_hodnoty_10min_splach = Objem_Er_Cr_10min_splach(rows,:);

% 2) voda je pouzivana pro zavlahu travniku
Va_10min_zavl = zeros(length(V_prit)+1, length(Va));
Vpotr_10min_zavl =
Vpotr_zavl*0.001*Zavlazovana_plocha+zeros(length(V_prit),
length(Va));
Vodber_10min_zavl = zeros(length(V_prit)+1, length(Va));

mi = 2;
ri = 1;
for mi = 2:height(Vodber_10min_zavl)
for ri = 1:length(Va)
    Vodber_10min_zavl(mi,ri) = min(Vpotr_10min_zavl(mi-1, ri),
Va_10min_zavl(mi-1, ri) + Vpritolok_10min(mi-1, ri));

    Va_10min_zavl(mi,ri) = min(Va_10min_zavl(mi-1,
ri)+Vpritolok_10min(mi-1, ri)-Vodber_10min_zavl(mi, ri),Va(ri));
    ri = ri + 1;
end
    mi = mi + 1;
end

Vodber_10min_zavl(1,:) = [];
Va_10min_zavl(1,:) = [];

% Efektivita vyuziti objemu nadrze
Er_10min_zavl = zeros(length(Va), 1);
mi = 1;
for mi = 1:length(Va)

    Er_10min_zavl(mi) =
(sum(Vodber_10min_zavl(:,mi))/Va(mi))/length(rok);
    mi = mi + 1;
end

% Stupen pokryti potreby uzitkove vody
Cr_10min_zavl = zeros(length(Va), 1);
mi = 1;
for mi = 1:length(Va)

```

```
Cr_10min_zavl(mi) =  
(sum(Vodber_10min_zavl(:,mi))/sum(Vpotr_10min_zavl(:,mi)))*100;
```

```
mi = mi + 1;
```

```
end
```

```
Objem_Er_Cr_10min_zavl = table(Va', Er_10min_zavl,  
Cr_10min_zavl);  
Objem_Er_Cr_10min_zavl.Properties.VariableNames{1} = 'VA';  
rows = (Objem_Er_Cr_10min_zavl.Er_10min_zavl<=8.5 &  
Objem_Er_Cr_10min_zavl.Er_10min_zavl>=7.5);  
Navrhove_hodnoty_10min_zavl = Objem_Er_Cr_10min_zavl(rows,:);
```

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% 3) voda je pouzivana pro zavlahu i splach
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```
Va_10min_komb = zeros(length(V_prit)+1, length(Va));  
Vpotr_10min_komb = Vpotr_10min_splach + Vpotr_10min_zavl;  
Vodber_10min_komb = zeros(length(V_prit)+1, length(Va));
```

```
mi = 2;
```

```
ri = 1;
```

```
for mi = 2:height(Vodber_10min_komb)
```

```
for ri = 1:length(Va)
```

```
    Vodber_10min_komb(mi,ri) = min(Vpotr_10min_komb(mi-1, ri),  
Va_10min_komb(mi-1, ri) + Vpritolok_10min(mi-1, ri));
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```
    Va_10min_komb(mi,ri) = min(Va_10min_komb(mi-1,  
ri)+Vpritolok_10min(mi-1, ri)-Vodber_10min_komb(mi, ri),Va(ri));  
    ri = ri + 1;
```

```
end
```

```
mi = mi + 1;
```

```
end
```

```
Vodber_10min_komb(1,:) = [];
```

```
Va_10min_komb(1,:) = [];
```

```
% Efektivita vyuziti objemu nadrze
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```
Er_10min_komb = zeros(length(Va), 1);
```

```
mi = 1;
```

```
for mi = 1:length(Va)
```

```
    Er_10min_komb(mi) =  
(sum(Vodber_10min_komb(:,mi))/Va(mi))/length(rok);  
    mi = mi + 1;
```

```
end
```

```

% Stupen pokryti potreby uzitkove vody
Cr_10min_komb = zeros(length(Va), 1);
mi = 1;
for mi = 1:length(Va)

    Cr_10min_komb(mi) =
    (sum(Vodber_10min_komb(:,mi))/sum(Vpotr_10min_komb(:,mi)))*100;

    mi = mi + 1;

end

Objem_Er_Cr_10min_komb = table(Va', Er_10min_komb,
Cr_10min_komb);
Objem_Er_Cr_10min_komb.Properties.VariableNames{1} = 'VA';
rows = (Objem_Er_Cr_10min_komb.Er_10min_komb<=8.5 &
Objem_Er_Cr_10min_komb.Er_10min_komb>=7.5);
Navrhove_hodnoty_10min_komb = Objem_Er_Cr_10min_komb(rows,:);

Splach = figure;
Zavlaha = figure;
Kombinace = figure;

figure(Splach)
yyaxis left
plot(Va, Er_10min_splach)
title('Uzitkova voda je vyuzivana pro splach', 'Balance s 10 min
krokem')
xlabel('VA [m3]');
ylabel('Er [m3/m3]');
hold on
yyaxis right
plot(Va, Cr_10min_splach)
ylabel('Cr [%]');
legend({'Efektivita vyuziti objemu nadrze', 'Stupen pokryti
potreby uzitkove vody'})
hold off

figure(Zavlaha)
yyaxis left
plot(Va, Er_10min_zavl)
title('Uzitkova voda je vyuzivana pro zavlahu travniku', 'Balance
s 10 min krokem')
xlabel('VA [m3]');
ylabel('Er [m3/m3]');
hold on
yyaxis right

```

```
plot(Va, Cr_10min_zavl)
ylabel('Cr [%]');
legend({'Efektivita vyuziti objemu nadrze', 'Stupen pokryti
potreby uzitkove vody'})
hold off

figure(Kombinace)
yyaxis left
plot(Va, Er_10min_komb)
title('Uzitkova voda je vyuzivana pro zavlahu i splach', 'Balance
s 10 min krokem')
xlabel('VA [m3]');
ylabel('Er [m3/m3]');
hold on
yyaxis right
plot(Va, Cr_10min_komb)
ylabel('Cr [%]');
legend({'Efektivita vyuziti objemu nadrze', 'Stupen pokryti
potreby uzitkove vody'})
hold off
```