

### Příloha 3

```
BrandysradaDP = readtable('Název srážkové řady.txt');
Sr_data_mm = BrandysradaDP{:,2}./60;
Datum = datetime(BrandysradaDP.Var1);

%Srzkove uhrny pro jednotlivé dny
TT = timetable(Datum,Sr_data_mm);
Denni_uhrny = retime(TT,'daily','sum');
[Rozdeleni_1, rok] = findgroups(TT.Datum.Year);

% Vypocet
A = ;
Souc_odtok = ;
Souc_filtr = ;
Ared = A*Souc_odtok*Souc_filtr;

%Pritok do akumulacni nadrze
V_prit = zeros(height(Denni_uhrny), 1);
mi = 1;
DU = Denni_uhrny.Sr_data_mm;
for mi = 1:length(DU)

    V_prit(mi) = 0.001*DU(mi)*A*Souc_odtok*Souc_filtr;

    mi = mi + 1;
end

%Bilance
Va = Ared*(0.0015:0.0001:0.095);
Vpritok_d = 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]';
Date = datetime(Denni_uhrny.Datum);
days_in_month = days(dateshift(Date,'end','month')-
dateshift(Date,'start','month')+1);
IS_d = Idealni_srazka(month(Date))./days_in_month;
Vpotr_zavl = zeros(length(IS_d), 1);

mi = 1;
for mi = 1:length(IS_d)

    if IS_d(mi) - DU(mi) >=0
```

```

Vpotr_zavl(mi) = IS_d(mi) - DU(mi);
else Vpotr_zavl(mi) = 0;
end
mi = mi + 1;

```

```
end
```

```
% 1) voda je pouzivana pro splachovani
```

```
Potreba_splachovani_m3den =
Potreba_splachovani_losd*0.001*Pocet_osob;
```

```
Va_d_splach = zeros(height(Denni_uhrny)+1, length(Va));
Vpotr_d_splach = Potreba_splachovani_m3den +
zeros(height(Denni_uhrny), length(Va));
Vodber_d_splach = zeros(height(Denni_uhrny)+1, length(Va));
```

```
mi = 2;
ri = 1;
for mi = 2:height(Vodber_d_splach)
for ri = 1:length(Va)
Vodber_d_splach(mi,ri) = min(Vpotr_d_splach(mi-1, ri),
Va_d_splach(mi-1, ri) + Vpritok_d(mi-1, ri));

Va_d_splach(mi,ri) = min(Va_d_splach(mi-1, ri)+Vpritok_d(mi-
1, ri)-Vodber_d_splach(mi, ri),Va(ri));
ri = ri + 1;
end
```

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

```
end
```

```
Vodber_d_splach(1,:) = [];
Va_d_splach(1,:) = [];
```

```
% Efektivita vyuziti objemu nadrze
```

```
Er_d_splach = zeros(length(Va), 1);
```

```
mi = 1;
```

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

```
Er_d_splach(mi) =
(sum(Vodber_d_splach(:,mi))/Va(mi))/length(rok);
mi = mi + 1;
```

```
end
```

```
% Stupen pokryti potreby uzitkove vody
```

```
Cr_d_splach = zeros(length(Va), 1);
```

```
mi = 1;
```

```

for mi = 1:length(Va)

    Cr_d_splach(mi) =
    ((sum(Vodber_d_splach(:,mi))/sum(Vpotr_d_splach(:,mi)))*100);

    mi = mi + 1;
end

Objem_Er_Cr_d_splach = table(Va', Er_d_splach, Cr_d_splach);
Objem_Er_Cr_d_splach.Properties.VariableNames{1} = 'VA';
rows = (Objem_Er_Cr_d_splach.Er_d_splach<=8.5 &
Objem_Er_Cr_d_splach.Er_d_splach>=7.5);
Navrhove_hodnoty_d_splach = Objem_Er_Cr_d_splach(rows,:);

% 2) voda je pouzivana pro zavlahu travniku
Va_d_zavl = zeros(length(Date)+1, length(Va));
Vpotr_d_zavl =
Vpotr_zavl*0.001*Zavlazovana_plocha+zeros(length(Date),
length(Va));
Vodber_d_zavl = zeros(length(Date)+1, length(Va));

mi = 2;
ri = 1;
for mi = 2:height(Vodber_d_zavl)
for ri = 1:length(Va)
    Vodber_d_zavl(mi,ri) = min(Vpotr_d_zavl(mi-1, ri),
Va_d_zavl(mi-1, ri) + Vpritok_d(mi-1, ri));

    Va_d_zavl(mi,ri) = min(Va_d_zavl(mi-1, ri)+Vpritok_d(mi-1,
ri)-Vodber_d_zavl(mi, ri),Va(ri));
    ri = ri + 1;
end
    mi = mi + 1;
end

Vodber_d_zavl(1,:) = [];
Va_d_zavl(1,:) = [];

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

    Er_d_zavl(mi) =
    (sum(Vodber_d_zavl(:,mi))/Va(mi))/length(rok);
    mi = mi + 1;
end

```

```

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

    Cr_d_zavl(mi) =
    (sum(Vodber_d_zavl(:,mi))/sum(Vpotr_d_zavl(:,mi)))*100;

    mi = mi + 1;

end

Objem_Er_Cr_d_zavl = table(Va', Er_d_zavl, Cr_d_zavl);
Objem_Er_Cr_d_zavl.Properties.VariableNames{1} = 'VA';
rows = (Objem_Er_Cr_d_zavl.Er_d_zavl<=8.5 &
Objem_Er_Cr_d_zavl.Er_d_zavl>=7.5);
Navrhove_hodnoty_d_zavl = Objem_Er_Cr_d_zavl(rows,:);

% 3) voda je pouzivana pro zavlahu i splach
Va_d_komb = zeros(length(Date)+1, length(Va));
Vpotr_d_komb = Vpotr_d_splach + Vpotr_d_zavl;
Vodber_d_komb = zeros(length(Date)+1, length(Va));

mi = 2;
ri = 1;
for mi = 2:height(Vodber_d_komb)
for ri = 1:length(Va)
    Vodber_d_komb(mi,ri) = min(Vpotr_d_komb(mi-1, ri),
Va_d_komb(mi-1, ri) + Vpritok_d(mi-1, ri));

    Va_d_komb(mi,ri) = min(Va_d_komb(mi-1, ri)+Vpritok_d(mi-1,
ri)-Vodber_d_komb(mi, ri),Va(ri));
    ri = ri + 1;
end
mi = mi + 1;
end

Vodber_d_komb(1,:) = [];
Va_d_komb(1,:) = [];

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

```

```

    Er_d_komb(mi) =
    (sum(Vodber_d_komb(:,mi))/Va(mi))/length(rok);
    mi = mi + 1;
end

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

    Cr_d_komb(mi) =
    (sum(Vodber_d_komb(:,mi))/sum(Vpotr_d_komb(:,mi)))*100;

    mi = mi + 1;

end

Objem_Er_Cr_d_komb = table(Va', Er_d_komb, Cr_d_komb);
Objem_Er_Cr_d_komb.Properties.VariableNames{1} = 'VA';
rows = (Objem_Er_Cr_d_komb.Er_d_komb<=8.5 &
Objem_Er_Cr_d_komb.Er_d_komb>=7.5);
Navrhove_hodnoty_d_komb = Objem_Er_Cr_d_komb(rows,:);

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

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

figure(Zavlaha)
yyaxis left
plot(Va, Er_d_zavl)
title('Uzitkova voda je vyuzivana pro zavlahu travniku','Denni
bilance')
xlabel('VA [m3]');

```

```
ylabel('Er [m3/m3]');
hold on
yyaxis right
plot(Va, Cr_d_zavl)
ylabel('Cr [%]');
legend({'Efektivita vyuziti objemu nadrze', 'Stupen pokryti
potreby uzitkove vody'})
hold off

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