Compare results model 3 and model 4

Willem Vervoort, Michaela Dolk & Floris van Ogtrop

2020-11-04

```r
require(tidyverse)
require(lubridate)
require(pander)
panderOptions('table.split.cells', 12)
panderOptions('table.alignment.default', 'center')
panderOptions('table.alignment.rownames', 'right')
```

```r
# root dir
knitr::opts_knit$set(root.dir = "C:/Users/rver4657/ownCloud/Virtual Experiments/VirtExp")
```

This rmarkdown document and the resulting pdf are stored on github. All directories (apart from the root working directory) refer to the directories in this repository

Introduction

This document is related to the manuscript "Disentangling climate change trends in Australian streamflow" (vervoort et al.). This document answers the reviewers question whether there is a systematci difference in the AIC values for "model 3" and "model 4", see document number 3 in this series.

Read in the data

The data are the AIC values from Table 5 and Table 6 in the manuscript.

```r
Table5 <- read_csv("../ProjectData/Table5.csv")
```

```
## Parsed with column specification:
## cols(
##   Station = col_character(),
##   AIC = col_double(),
##   Qtrend = col_double(),
##   Qpvalue = col_double(),
##   Q_percent = col_double()
## )
```

```r
Table6 <- read_csv("../ProjectData/Table6.csv")
```

```
## Parsed with column specification:
## cols(
```

```
##   Station = col_character(),
##   AIC = col_double(),
##   Qtrend = col_double(),
##   Qpvalue = col_double(),
##   Q_percent = col_double(),
##   AIC_5 = col_double(),
##   tau.MK = col_double(),
##   p.value.MK = col_double(),
##   Hurst.p.value = col_double(),
##   p.value.LTP.MK = col_double()
## )
```

Extract the AIC values and combine into a new table

```
AICTable <- tibble(Catchment = Table5$Station,
                   AICModel3 = Table5$AIC,
                   AICModel4 = Table6$AIC,
                   `Difference3-4` = Table5$AIC - Table6$AIC)
```

```
pander(AICTable)
```

Catchment	AICModel3	AICModel4	Difference3-4
COTT	1347	997.8	349.5
RUTH	1957	1746	210.6
CORA	3801	3804	-2.651
ELIZ	2737	2676	60.64
COCH	2157	1693	464.3
COEN	2791	2781	10.03
SCOT	1561	1556	5.401
HELL	2902	2815	86.75
NIVE	3395	3291	103.3
MURR	774.9	-404.6	1180
SOUT	2240	1460	779.8
YARR	-512.9	-514.3	1.41
DOMB	2128	2131	-3.833

```
mean(AICTable$`Difference3-4`)
```

```
## [1] 249.6007
```

```
median(AICTable$`Difference3-4`)
```

```
## [1] 86.74665
```

plot on 1:1

Plot the AIC values against each other and insert a 1:1 line

```
AICTable %>%
  ggplot(aes(AICModel3,AICModel4,colour=Catchment)) +
  geom_point(size=3) + geom_abline(linetype = 2) + theme_bw()
```