

# seasonal: R-Interface to X-13ARIMA-SEATS

Christoph Sax, University of Basel  
christoph.sax@gmail.com

# installation

`http://cran.r-project.org/web/packages/seasonal/vignettes/seas.pdf`

demo website: [www.seasonal.website](http://www.seasonal.website)

seasonal.website

SEASONAL R INTERFACE TO X-13 WORKBENCH INTRODUCTION EXAMPLES FEEDBACK

### Options

Adjustment Method  
SEATS

Pre-Transformation  
AIC Test

Arima Model  
(1 1)(0 1 1)

Outlier  
Auto Critical Value

Holiday  
AIC Test Easter

Trading Days  
AIC Test

### Output

Original and Adjusted Series

- MAIN
  - Original and Adjusted Series
  - Original and Adjusted Series (%)
- FORECAST
  - Forecasts
- TRANSFORM
  - Series after pre-transformation

— original — adjusted

### R-Call

```
seas{
  x = AirPassengers,
  arima.model = "(1 1)(0 1 1)"
}
```

### Summary

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
Weekday	-0.0029901	0.0005110	-5.842	5.17e-09 ***
Easter[1]	0.0179214	0.0078072	2.250	0.0185 *
A01951_May	0.1022958	0.0203443	5.028	4.95e-07 ***
AR-Nonseasonal-01	0.8150897	0.0699456	11.652	< 2e-16 ***
MA-Nonseasonal-01	0.5504664	0.0355345	27.061	< 2e-16 ***
MA-Seasonal-12	0.4969479	0.0789732	6.293	1.12e-10 ***

# properties of a good X-13 interface

- ▶ full featured
- ▶ easy to use
- ▶ R-like

passing `spec.argument` combinations to ...

```
seas(AirPassengers,  
     transform.function = "log"  
)
```

## combining with sensible defaults

`seas(AirPassengers)`

- ▶ Transformation selection (log / no log)
- ▶ Detection of trading day and Easter effects
- ▶ Outlier detection
- ▶ ARIMA model search
- ▶ SEATS adjustment

specific output

```
series(m, "history.trendestimates")
```

## in action (1)

```
library(seasonal)
```

```
# basic use
```

```
m <- seas(AirPassengers)
```

```
summary(m)
```

```
# some methods
```

```
final(m)
```

```
plot(m)
```



## in action (2)

```
# invoke 'spec.argument' through the '...'
seas(AirPassengers, force.type = "denton")
seas(AirPassengers, x11 = "")

# static replication of 'm <- seas(AirPassengers)'
static(m)

# generic extractor function for X-13 series
series(m, "forecast.forecasts")
series(m, "history.trendestimates")
```

## in action (3)

```
# user defined regressors
myseries <- genhol(cny, start = 0, end = 0,
                  center = "calendar")

summary(seas(imp,
             xreg = myseries,
             regression.aictest = "td",
             regression.usertype = "holiday"
           )
        )

# GUI
m1 <- inspect(m)
```

## ressources

demo website and ressources

`www.seasonal.website`

stable version

`http://cran.r-project.org/web/packages/seasonal`

development version

`https://github.com/christophsax/seasonal`