

# NDVI

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MODIS -NDVI

(Kogan, 2000; Legates, 2000)

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Wigneron, et '1996 'Metternicht & Zinck

(Tucker, 1996)

◦ (AVHRR)<sup>2</sup> ◦  
) (NDVI)<sup>3</sup>

(al., 1998

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(Wilson, et al., 2003)

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(Sandholt, et al., 2002)

(Mohler, et al., 1986; Henricksen, et al., 1986; Townshend, 1987; Tucker & Choudhury, 1987; Tucker, 1989; Gutman, 1990; Wang, 2005).

(Terra/MODIS)<sup>4</sup>

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(Wang, et al., 2001)

(Farrar, et al., 1994; Adegok and Carleton, 2002; Wang, 2000)

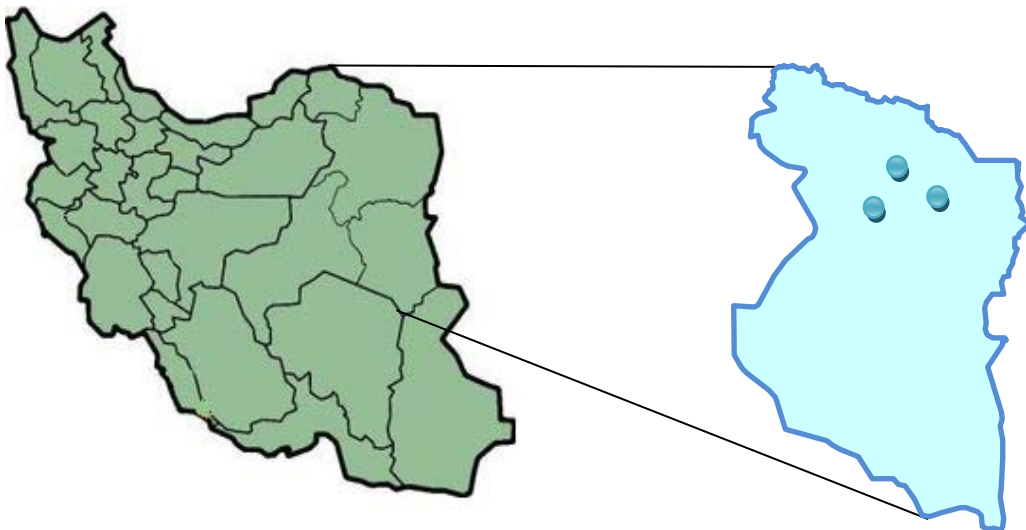
(Justice, et al., NDVI

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1986; Malo & Nicholson, 1990; Davenport & Nicholson, 1993; Nicholson & Farrar, 1994; Wang, 2000; Wang, et al., 2001).

(2002) Carleton Adegok

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$$Y = \beta_0 + \beta_1 X + \varepsilon$$

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$\beta_0$

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$$SM = \beta_0 + \beta_1 NDVI$$

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SAS 9.0

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(R<sup>2</sup>-adj)<sup>6</sup>

(RMSE)<sup>7</sup>

(NDVI)

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(Red)

(Simpson & Still,

(NIR)

:1998)

$$NDVI = \frac{NIR - Red}{NIR + Red}$$

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(NDVI)

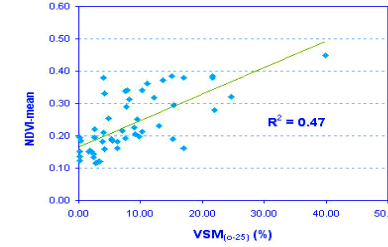
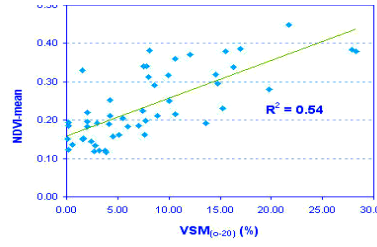
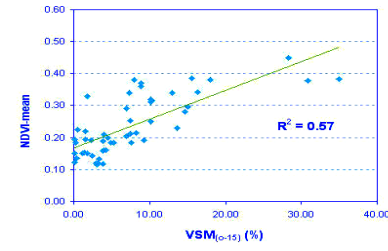
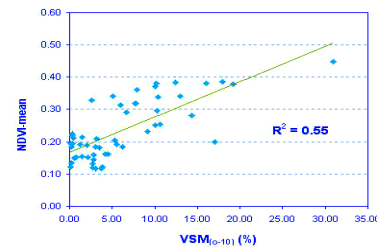
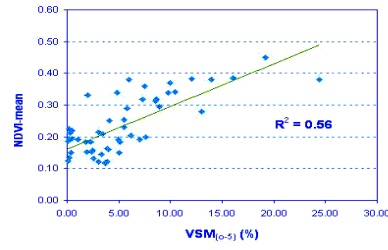
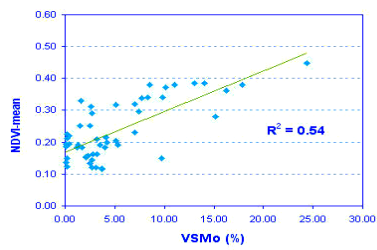
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(VSM)<sup>10</sup>

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(NDVI-mean)



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(NDVI)

VSM<sub>(0-5)</sub>% :

NDVI

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| RMSE | R <sup>2</sup> -adj | R <sup>2</sup> | R |   |  |
|------|---------------------|----------------|---|---|--|
| /    | /                   | /              | / | SM <sub>0</sub> = -4.896 + 42.735 NDVI      |  |
| /    | /                   | /              | / | SM <sub>(0-5)</sub> = -4.292 + 41.675 NDVI  |  |
| /    | /                   | /              | / | SM <sub>(0-10)</sub> = -5.704 + 50.588 NDVI |  |
| /    | /                   | /              | / | SM <sub>(0-15)</sub> = -7.236 + 62.843 NDVI |  |
| /    | /                   | /              | / | SM <sub>(0-20)</sub> = -5.219 + 55.164 NDVI |  |
| /    | /                   | /              | / | SM <sub>(0-25)</sub> = -5.236 + 58.074 NDVI |  |

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(R<sup>2</sup>)

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SM<sub>(0-15)</sub> = -7.236 + 62.843 NDVI

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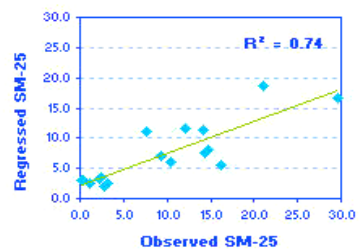
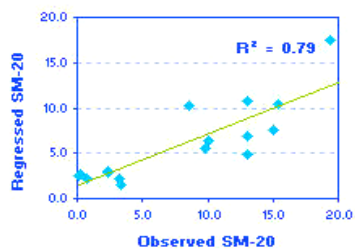
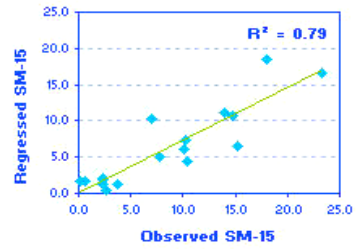
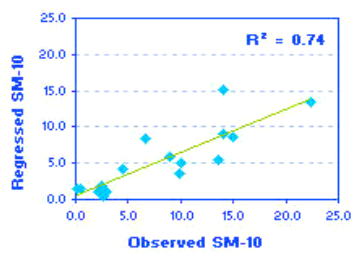
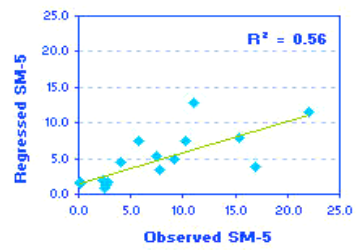
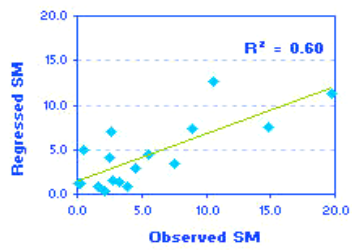
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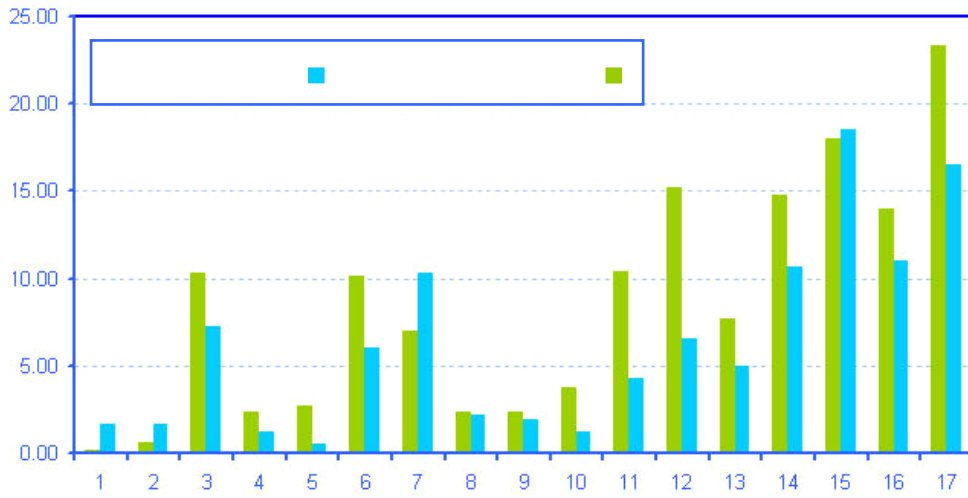
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| RMSE | R <sup>2</sup> -adj | R <sup>2</sup> | R |
|------|---------------------|----------------|---|
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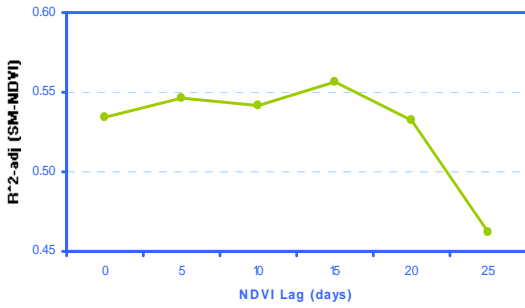
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(Wang, 2005)

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- 5- Dark Pixel
  - 6- Adjusted coefficient of determination
  - 7- Root of Mean Squares Errors
  - 8- t-experiment
  - 9- Observed soil moisture
  - 10- Volumetric Soil Moisture
  - 11- Regressed Soil Moisture
  - 12- Estimated error
  - 13- Ephemeral

- 1- Sensor
- 2- Advanced Very High Resolution Radiometer
- 3- Normalized Difference Vegetation Index
- 4- Moderate Resolution Imaging Spectrometer

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